

JOURNAL
of the
**American Veterinary Medical
 Association**

FORMERLY

AMERICAN VETERINARY REVIEW

(Original Official Organ U. S. Vet. Med. Ass'n.)

EDITED AND PUBLISHED FOR

The American Veterinary Medical Association

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(Original Official Organ U. S. Vet. Med. Ass'n.)

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No. 4

LEXINGTON, THE CONVENTION CITY

Lexington, Kentucky, is the thirtieth city on the North American continent to be selected by the American Veterinary Medical Association for an annual convention. Twenty-seven of these cities are in the United States and three in Canada. The 1926 meeting will be the first ever held in Kentucky, although many of the states adjoining have had meetings. The meeting this year will be the first one in the territory comprising Executive Board District No. 4, since 1897, when the Association met in Nashville, Tenn. It will be the first meeting in the United States, east of the Mississippi River, since 1920, when we met in Columbus, Ohio. These reasons alone should contribute toward an unusually large attendance. Over one-fourth of the graduate veterinarians in the United States are located in Kentucky and the states immediately adjoining, so the location may be said to be quite central.

Everybody has heard of Lexington; even those who did not have the good fortune to be present at the meetings in Des Moines and Portland. In the very "Heart of the Bluegrass," the fame of Lexington has spread to all corners of the world as the home of the Thoroughbred. Romance and history are interwoven with many of the points of interest to be found in and around Lexington. There is "Ashland," the former home of

Henry Clay. Likewise the former abode of Mary Todd, who became Mrs. Abraham Lincoln. Transylvania University, the oldest educational institution west of the Allegheny Mountains, established in 1786, is located in Lexington, as is also the University of Kentucky. The oldest running race course in the country is to be found here. The gigantic tobacco warehouses in this section make it the leading tobacco market of the world.

Lexington is one of the most accessible cities in the South, particularly for those who may wish to drive their cars to the convention. The city is located at the intersection of five great national highways—the National Midland Trail, the Dixie Highway, the Dixie Route "A," the Boone Way and the Appalachian Way, in addition to the L. L. L. Route and the Cincinnati-Lookout Mountain Air Line. Motor coaches run between Lexington and Cincinnati, Louisville and Knoxville. Trunk lines of the Chesapeake and Ohio, Louisville and Nashville and Southern railways meet at Lexington.

But this is hardly the place to tell about the attractions of Lexington and Kentucky. We might go on and tell about Nancy Hanks, Daniel Boone, Man o'War, Collins' Cave, Shakertown, Burley tobacco and Old Curley Distillery, but this would be encroaching upon the prerogatives of Dr. Dimock and his able Local Committee on Arrangements, who have been working assiduously for two years on the plans for entertaining the A.V.M.A. The best advice we can give is: Go and see for yourself.

Lexington! Let's Go!

CAMP SITE AT LEXINGTON

For those who desire to drive their cars to Lexington, the following information will be interesting. Lexington has a splendid free tourist camp at Joyland Park. The camp is equipped with the following facilities for tourists: City water, electric lights, toilets, shade trees, benches, park-seats, tables, etc. In addition there is a fine restaurant, a dance-hall with a splended orchestra, a zoo, the usual park amusements, a gasoline station, a grocery store and interurban service into Lexington. Joyland Park is also located on one of the main bus-lines, on one of the finest highways in the Blue Grass and is only three miles from the City. The Park is surrounded by large estates and homes and is close to the Lexington Country Club. It is next door to Mor-

vich, the great race-horse who "resides" on Miss Daingerfield's farm, and is but a few miles from the famous Elmendorf farm and the farm on which Man-o'-War, the super-race-horse, is "at home."

Yes—Suh! Lexington, Ky., Aug. 17-18-19-20, 1926

BIRD'S-EYE VIEW OF PROGRAM

	Monday Aug. 16	Tuesday Aug. 17	Wednesday Aug. 18	Thursday Aug. 19	Friday Aug. 20
MORNING		Opening Session	Sectional Meetings	Sectional Meetings	Business Session
AFTERNOON	Meeting of Executive Board	Business Session	Business Session	Trip to Breeding Farms	Clinic
EVENING	State Association Conference	Alumni 6:00 President's Reception 8:00 Dance	General Session — Papers	Banquet	Open

*In the Heart of the Blue Grass
August 17-18-19-20, 1926*

MORE CONCERNING OUR BOOKLETS

Although it is now over eight months since the first copies of the booklet, "Nothing to Sell but His Services," were distributed, we continue to receive requests for copies, and comments of various kinds are frequently made, favorable in the large majority of cases, it is pleasing to say. There has been just one commentator who seemed to be a little bit afraid that the distribution of this booklet might be a violation of the code of ethics, at least the letter, if not the spirit. We have no fears on this score, for a number of reasons. The booklet as originally printed bears the imprint of the American Veterinary Medical Association and not the name of any individual veterinarian. The purpose of this booklet was clearly stated in the editorial announcement published in the JOURNAL for November, 1925:

It has been published to meet a demand, coming particularly from our practitioners, for something that could be enclosed with a bill, or a statement, or a letter going to a client or any owner of live stock, telling a little about what a veterinarian is.

Even conceding that the distribution of the booklet for the above purpose would constitute a violation of the code of ethics, it would be a very minor one when compared with some other

stunts enacted by veterinarians under the head of publicity. We are very well aware of the fact that the passage of time brings new conditions and that these have to be met. If the distribution of this booklet is a violation of the code of ethics, we want to know it. If it is, then the publication and distribution of such a fine piece of publicity as "Veterinary Service—Its Value to the Farmer, Industry and Humanity," by the Nebraska State Veterinary Medical Association, comes in the same category. But again we say we have no fears on this score. It is often not the thing which is done, so much as it is the way it is done.

In the December, 1925, JOURNAL we reported a number of favorable comments that had been made relative to this booklet. Since that time we have received many others. A letter received just recently contained the following: "The material that they (the booklets) contain appears to me as being something that the public should know." This is just exactly what we had in mind when the booklet was written. Another veterinarian writes, "I think these booklets will be a great help to the veterinary profession, only if backed properly by the individual." This is absolutely true and, as we have said on numerous occasions, any kind of publicity in behalf of the veterinarian will fail unless the profession lives up to the standard fixed by those whose function it is to say something publicly in behalf of the veterinarian.

As an example of one of the very good uses to which the booklet has been put, we might report that the Pennsylvania State Veterinary Medical Association maintained a booth at the State Farm Show, held in Harrisburg, in January. One or more veterinarians were stationed in the booth, during the show. A supply of the booklets was kept in the booth and a copy was given to every visitor who appeared to be interested. Care was taken to see that the booklets were not handled out promiscuously. About five hundred copies were placed in the hands of the same number of people who were asked to take the booklets home and read them.

Quite a number of inquiries have been received asking when the next booklet would be available. For example: "Am delighted with 'Nothing to Sell but His Services' and hope more booklets of a similar nature will follow." We are perfectly willing to do what we can to satisfy this demand, although it is not easy to decide just what is wanted. We have had some suggestions that were absolutely impractical. We have had others of

unquestionable merit, but involving too much expense. In the first announcement of the booklet, we asked for suggestions that would be helpful in shaping our plans for other booklets. We take this occasion to thank the many veterinarians who have commented on the booklets already published, as well as those who have made suggestions for others to follow. We expect to be able to announce the publication of another booklet in the near future. Watch these columns for such an announcement.

Lexington! Let's Go!

RABIES ORDINANCES

To meet the demand for frequent requests concerning ordinances making vaccination of dogs against rabies compulsory, under varying local conditions, we publish the following list of cities and towns reported to us as having passed such ordinances:

Alabama Anniston	Kentucky Alexandria
Arizona Douglas	Michigan Detroit Marquette
California Los Angeles San Diego	Missouri Independence
Florida Pensacola	New Jersey West Orange
Georgia Albany Dawson Thomas	North Carolina Burlington
Illinois Carthage Murdock Neoga Newman •St. Joseph Shelbyville Sidney Urbana	Ohio Lakewood
Kansas Fort Riley	Oklahoma McAlester
	South Carolina Charleston Georgetown Greenville Union
	Texas Beaumont Teague

It is quite likely that there are other municipalities that have adopted similar ordinances. If so, kindly report any you know. We keep on hand, in this office, copies of some of these ordinances. Same will be supplied on request.

NEW VETERINARY JOURNAL

The Alumni Association of the National Veterinary School of Mexico has issued the first number of *Medicina Veterinaria*, as the official monthly journal of the Association. The first number is nicely illustrated and made its appearance on the tenth anniversary of the founding of the National Veterinary School of Mexico, now directed by Dr. Luis Santa Maria. Up to the present time, there have been no veterinary journals published in Mexico and we feel that this new journal will fill a great need of the profession in our sister republic. In an excellent editorial they state that it is their ideal to be of service to the country and to society. We wish them Godspeed in all their efforts.

N. S. M.

Yes—Suh! Lexington, Ky., Aug. 17-18-19-20, 1926

A. A. A. S.—A. V. M. A.

Notification has been received that the American Veterinary Medical Association was elected to official affiliation with the American Association for the Advancement of Science at the spring meeting of the Executive Committee of the Council of the A. A. A. S., held at Washington, D. C., April 25, 1926.

The A. V. M. A. has been grouped with Section N (Medical Sciences), which includes the American Medical Association, the Society of American Bacteriologists, the American Public Health Association, the American Society of Parasitologists, the American Pharmaceutical Association, and several other scientific organizations of a related character.

This action is the outcome of the recommendation of the Executive Board, made and approved at Portland, last year. It is along the line advocated in the policy of the A. V. M. A., in the chapter entitled "Allied Organizations," that we become more closely identified with other organizations, particularly those "interested in the problems of agriculture, live stock improvement and public health."

A comparison of the membership lists of the A. A. A. S. and the A. V. M. A. shows that there are thirty-two members of the A. V. M. A. who are already members of the A. A. A. S. Of these, thirteen are fellows. Under the conditions of affiliation with the A. A. A. S., the regular entrance fee for new mem-

bers is remitted and thereby a member of the A. V. M. A. may become a member of the A. A. A. S. by paying only the annual dues of five dollars. Each newly-elected member receives a certificate of membership. All members receive either *Science* or the *Scientific Monthly*, published by the A. A. A. S.

The A. V. M. A. is now entitled to one representative in the Council of the A. A. A. S. Just as soon as our membership in the A. A. A. S. reaches one hundred, we will be entitled to two council representatives. Applications for membership in the A. A. A. S. may be obtained from the secretary of the A. V. M. A. Copies of the booklet of information on the organization and work of the A. A. A. S. are also available.

In the Heart of the Blue Grass
August 17-18-19-20, 1926

LEXINGTON HOTELS

The following rates will prevail at the Phoenix Hotel:

Single room without bath, \$2.00 per day.

Double room without bath, \$3.50 per day.

Single room with bath, \$2.75, \$3.00 and \$4.00.

Double room with bath, \$5.00, \$6.00 and \$6.50.

Double room with bath (twin beds), \$6.00, \$7.00 and \$10.00.

Where three or more persons occupy the same room without bath, a charge of \$1.50 each will be added to the regular rate. In rooms with bath the charge will be \$2.00 for each additional person over the regular rate.

The rates for the Lafayette Hotel are as follows:

Single room with bath \$3.00, \$3.50 and \$4.00 per day.

Double room with bath (one double bed) \$4.50, \$5.00 and \$6.00 per day.

Double room with bath (twin beds) \$5.00, \$6.00, \$6.50 and \$7.00 per day.

Rooms rented en suite, two connecting rooms with bath between (two persons) \$3.50 per person.

Two connecting rooms with bath between (three persons) \$3.25 per person.

Two connecting rooms with bath between (four persons) \$3.00 per person.

Lexington! Let's Go!

EXECUTIVE BOARD ELECTION

The election of a member of the Executive Board for District No. 6 came to a close June 17, when the tellers sat down to the task of canvassing the 350 ballots which had been cast in favor of some one of the five nominees.

Dr. George H. Hart, of Berkeley, California, was declared elected by a comfortable margin. California has in the neighborhood of 150 members in the A. V. M. A. Dr. Hart received

103 votes, showing how well the veterinarians in the Golden State supported their candidate.

The member-elect of the Executive Board, who will take office at the close of the meeting in Lexington, needs no introduction to the profession, particularly the members of the A. V. M. A. A brief biographical sketch was published in the JOURNAL in May. He is professor of veterinary science at the University of California and one of his hobbies is serving the A. V. M. A. as one of the vice-presidents. He has been one four years out of the last eleven. Congratulations, Dr. Hart.

Yes—Suh! Lexington, Ky., Aug. 17-18-19-20, 1926

APPLICATIONS FOR MEMBERSHIP

(See April, 1926, JOURNAL)

FIRST LISTING

BERGER, ROBERT LEWIS	Hamburg, Pa.
D. V. M., Grand Rapids Veterinary College, 1911	
Vouchers: Louis A. Klein and G. A. Dick.	
BRIGGS, CARL LYTLE	R. F. D. No. 3, Waterford, Pa.
V. M. D., University of Pennsylvania, 1926	
Vouchers: Dr. John W. Adams and C. J. Marshall.	
CASWELL, F. E.	North Adams, Mich.
B. V. Sc., Ontario Veterinary College, 1913	
Vouchers: Edw. K. Sales and B. J. Killham.	
COBURN, DON R.	Box 151, Cassopolis, Mich.
D. V. M., Michigan State College, 1924	
Vouchers: C. H. Clark and B. J. Killham.	
DEGROOT, A. H.	223 Tecumseh St., Dundee, Mich.
D. V. M., Grand Rapids Veterinary College, 1917	
Vouchers: H. Preston Hoskins and B. J. Killham.	
DETTMAN, FRED H.	216 E. Main St., Troy, Ohio.
V. S., Ontario Veterinary College, 1905	
Vouchers: Leonard W. Goss and Russell E. Rebrassier.	
DICKIE, D. H.	Lawton, Mich.
D. V. M., Michigan State College, 1923	
Vouchers: H. Preston Hoskins and B. J. Killham.	
DUNN, ALEXANDER R.	513 So. Washington Ave., Lansing, Mich.
D. V. M., Michigan State College, 1919	
Vouchers: Arthur McKercher and H. Preston Hoskins.	
ELZINGA, HERBERT	Marne, Mich.
D. V. S., Grand Rapids Veterinary College, 1906	
Vouchers: G. M. Thorndike and B. J. Killham.	
ERICKSON, ALFRED E.	216 So. Washington St., Charlotte, Mich.
D. V. M., Grand Rapids Veterinary College, 1918	
Vouchers: H. Preston Hoskins and B. J. Killham.	
EVANS, CLAUDE D.	130 Bayard St., Kane, Pa.
D. V. M., McKillip Veterinary College, 1916	
Vouchers: G. A. Dick and M. P. Hendrick.	
FOLSOM, EDWARD GRAHAM, JR.	1248 Frank St., Detroit, Mich.
V. S., Ontario Veterinary College, 1908	
Vouchers: E. P. Schaffter and H. Preston Hoskins.	
GEORGE, ALBERT EDWARD	Perry, Mich.
D. V. M., Michigan State College, 1920	
Vouchers: L. H. LaFond and B. J. Killham.	

- HERRIOTT, HARRY WILLIAM R. D. No. 3, McDonald, Pa.
 V. M. D., University of Pennsylvania, 1926
 Vouchers: John W. Adams and C. J. Marshall.
- HOMILLER, JOHN P. Hatboro, Pa.
 V. M. D., University of Pennsylvania, 1918
 Vouchers: John W. Adams and G. A. Dick.
- HUNTER, JAMES M. 15 East St., New Milford, Conn.
 V. M. D., University of Pennsylvania, 1921
 Vouchers: Geo. E. Corwin and R. L. Smith.
- JANDERNOA, ANTHONY V. Pewamo, Mich.
 D. V. M., Grand Rapids Veterinary College, 1917
 Vouchers: A. McKercher and B. J. Killham.
- KINEMOND, GEORGE HERMAN 1844 No. Park Ave., Philadelphia, Pa.
 V. M. D., University of Pennsylvania, 1926
 Vouchers: John W. Adams and C. J. Marshall.
- LITTLE, ROBERT GEORGE 515 Market St., Williamsport, Pa.
 V. M. D., University of Pennsylvania, 1926
 Vouchers: John W. Adams and C. J. Marshall.
- McCONN, FRANK JOSEPH Fayetteville, Ohio.
 D. V. M., Cincinnati Veterinary College, 1915
 Vouchers: Leonard W. Goss and Russell E. Rebrassier.
- MCCULLOCH, E. C. Univ. of Illinois, Urbana, Ill.
 D. V. M., Kansas State Agricultural College, 1924
 Vouchers: Robert Graham and Edwin J. Frick.
- MILLER, WILLIAM SHEELER 18 8th Ave., Haddon Heights, N. J.
 V. M. D., University of Pennsylvania, 1926
 Vouchers: John W. Adams and C. J. Marshall.
- MYERS, FLOYD E. Gladwin, Mich.
 B. V. Sc., Ontario Veterinary College, 1912
 Vouchers: H. C. Graham and B. J. Killham.
- NUGENT, WILLIAM KEMP 113-04 93rd Ave., Richmond Hill, N. Y.
 D. V. M., Cornell University, 1925
 Vouchers: Cheston M. Hoskins and Robt. S. MacKellar.
- ROBBINS, JOSIAH C. Bay Shore, L. I., N. Y.
 V. M. D., University of Pennsylvania, 1926
 Vouchers: John W. Adams and C. J. Marshall.
- ROGERS, JOHN ALLYN Bustleton, Philadelphia, Pa.
 V. M. D., University of Pennsylvania, 1926
 Vouchers: John W. Adams and C. J. Marshall.
- SCHNELLE, GERRY B. 184 Longwood Ave., Boston, Mass.
 V. M. D., University of Pennsylvania, 1926
 Vouchers: John W. Adams and C. J. Marshall.
- STROCKBINE, JAMES KENNEDY 268 So. 38th St., Philadelphia, Pa.
 V. M. D., University of Pennsylvania, 1926
 Vouchers: John W. Adams and C. J. Marshall.
- TUNNICLIFF, EVERETT A. University of Illinois, Urbana, Ill.
 D. V. M., Kansas State Agricultural College, 1921
 Vouchers: Robert Graham and R. R. Dykstra.
- VAN ZOEREN, WILLIAM Vriesland, Mich.
 D. V. M., Grand Rapids Veterinary College, 1910
 Vouchers: G. M. Thorndike and B. J. Killham.
- VEENSTRA, JOHN Y. R. R. No. 10, Grand Rapids, Mich.
 M. D. V., McKillip Veterinary College, 1907
 Vouchers: G. M. Thorndike and B. J. Killham.
- WADDELL, R. A. Concord, Calif.
 D. V. S., San Francisco Veterinary College, 1906
 Vouchers: J. J. Hogarty and O. A. Longley.
- WHARTON, FRANKLIN SWIGGETT Dover, Del.
 V. M. D., University of Pennsylvania, 1926
 Vouchers: John W. Adams and C. J. Marshall.
- WRIGHT, WILLARD H. Elkton, Md.
 D. V. M., George Washington University, 1917
 Vouchers: E. M. Pickens and L. J. Poelma.

Applications Pending**SECOND LISTING**

- Bacon, Ernest V., Estelline, So. Dak.
 Carter, Emert Stewart, 511 W. McDaniel St., Springfield, Mo.
 Clark, Edward P., Intercourse, Pa.
 Dailey, Hugh Frederick, 184 Longwood Ave., Boston, Mass.
 Fincke, Gerald Payne, 250 Moreland Ave., Hatboro, Pa.
 Fridirici, Ira Linton, Independence St., Orwigsburg, Pa.
 Gillmann, John H., 219 Madison Ave., Memphis, Tenn.
 Haasjes, Charles H., Shelby, Mich.
 Hall, Warren P. S., 13581 Pinehurst, Detroit, Mich.
 Henley, M. D., Wingate, Ind.
 Ireland, Joseph W., 1102 Vermont St., Quincy, Ill.
 Johnson, A. A., Box 825, Martinsburg, W. Va.
 Knobel, Edward, 453 Washington St., Dedham, Mass.
 Knowles, A. T., 2930 Allapattah Drive, Miami, Fla.
 Marney, U. E., Box 386, San Antonio, Texas.
 Peace, Charles V., 33 So. 5th Ave., Coatesville, Pa.
 Pleuger, Carl A., 2129 Freeman Ave., Cincinnati, Ohio.
 Richardson, Oscar C., 1502 No. Capitol Ave., Indianapolis, Ind.
 Robinson, Murrell Orton, East Downingtown, Pa.

The amount that should accompany an application filed this month is \$7.50, which covers membership fee and dues to January 1, 1927, including subscription to the JOURNAL.

In the Heart of the Blue Grass
August 17-18-19-20, 1926

COMING VETERINARY MEETINGS

- Illmo Veterinary Medical Association. Country Club, Marissa,
 Ill. July 1, 1926. Dr. L. B. Michael, Secretary, Collinsville, Ill.
 New Jersey, Veterinary Medical Association of. Asbury Park,
 N. J. July 8-9, 1926. Dr. Geo. P. Ellice, Secretary, 37 Ivy
 Place, Rutherford, N. J.
 Virginia State Veterinary Medical Association. Ocean View, Va.
 July 8-9, 1926. Dr. W. H. Ellett, Secretary, Midlothian, Va.
 Tennessee Veterinary Medical Association. Clarksville, Tenn.
 July 8-9, 1926. Dr. L. G. Brown, Secretary, Franklin, Tenn.
 B. A. I. Veterinarians, Mississippi Valley Division, National
 Association of. July 10, 1926. Dr. R. E. Surring, President,
 National Stock Yards, Ill.
 Chicago Veterinary Society. Great Northern Hotel, Chicago,
 Ill. July 13, 1926. Dr. J. B. Jaffray, Secretary, 2956 Wash-
 ington Blvd., Chicago, Ill.
 South Carolina Association of Veterinarians. Orangeburg, S. C.
 July 13-14, 1926. Dr. M. R. Blackstock, Secretary, Spartan-
 burg, S. C.
 Maine Veterinary Medical Association. Rockland, Me. July 14,
 1926. Dr. A. J. Neal, Secretary, 324 Essex St., Bangor, Me.

- Nevada State Veterinary Association. Reno, Nev. July 14, 1926. Dr. Edward Records, Secretary, University of Nevada, Reno, Nev.
- Illinois State Veterinary Medical Association. Springfield, Ill. July 14-15, 1926. Dr. W. H. Welch, Secretary, Lexington, Ill.
- Maryland State Veterinary Medical Association. Hagerstown, Md. July 15-16, 1926. Dr. E. M. Pickens, Secretary, College Park, Md.
- Western New York Veterinary Medical Association. Batavia, N. Y. July 16, 1926. Dr. F. F. Fehr, Secretary, 243 So. Elmwood Ave., Buffalo, N. Y.
- Kansas City Association of Veterinarians. New Baltimore Hotel, Kansas City, Mo. July 20, 1926. Dr. J. D. Ray, 400 New Centre Bldg., Kansas City, Mo.
- North Dakota Veterinary Medical Association. Fargo, N. D. July 20-21, 1926. Dr. H. L. Foust, Secretary, State College, Fargo, N. D.
- Minnesota State Veterinary Medical Association and Short Course for Veterinarians. University Farm, St. Paul, Minn. July 22-23, 1926. Dr. C. P. Fitch, Secretary, University Farm, St. Paul, Minn.
- Saskatchewan, Veterinary Association of. University of Saskatchewan, Saskatoon, Sask. July 22-23, 1926. Dr. R. G. Chasmar, Secretary, Hanley, Sask.
- Missouri Valley Veterinary Association. Kansas City Athletic Club, Kansas City, Mo. July 27-28-29, 1926. Dr. E. R. Steel, Secretary, Grundy Center, Iowa.
- Montana Veterinary Medical Association. Helena, Mont. July 30-31, 1926. Dr. Hadleigh Marsh, Secretary, Livestock Sanitary Board, Helena, Mont.
- Northwestern Veterinary Medical Association. Victoria, B. C. Aug. 2-3-4, 1926. Dr. W. Graham Gillam, Hon. General Secretary, Cloverdale, B. C.
- Connecticut Veterinary Medical Association. Bridgeport, Conn. Aug. 4, 1926. Dr. Geo. E. Corwin, Secretary, 11 Warrenton Ave., Hartford, Conn.
- Ontario Veterinary Association. Prince George Hotel, Toronto, Ont. Aug. 11-12, 1926. Dr. H. M. LeGard, Secretary, 223 Main St. N., Weston, Ont.
- American Veterinary Medical Association. Phoenix Hotel, Lexington, Ky. Aug. 17-18-19-20, 1926. Dr. H. Preston Hoskins, Secretary, 716 Book Bldg., Detroit, Mich.

OSLER AND VETERINARY MEDICINE

By WARD GILTNER, East Lansing, Michigan

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Sir William Osler, according to Dr. Wm. H. Welch, 'held a dominant position in medicine and at the time of his death he was probably the greatest figure in the medical world; the best known, the most influential, the most beloved.'

He was born and educated a Canadian; became famous as an American professor at Hopkins; spent his declining years as Regius Professor of Medicine at Oxford, dying as he had lived—a thorough Briton.

Harvey Cushing has done a great thing for our generation by affording us an opportunity to become acquainted with this remarkable man in a two-volume life of Sir William Osler.* R. M. Yerke says, in the *International Book Review*, "The life history of a noble man and a great physician. My advice regarding this life of Dr. Osler is definite and unqualified. 'Read it.' From the reading . . . I arose refreshed, strengthened, inspired to do better living." In the *New York Herald-Tribune*, Stuart P. Sherman says, "If wishing could do it, I would wish *The Life of Sir William Osler* into the hands of every man, woman and child who reads the six best-selling novels. It is an immense and wonderful book."

For the benefit of those veterinarians who may not have an opportunity to read *The Life of Sir William Osler*, but perhaps more particularly for my own pleasure, I have tried to set down a few things to illustrate Osler's interest in veterinary medicine.

Cushing relates:

. . . It was during the spring of 1870, despite all of his accumulating interests, that Osler began visiting the veterinary hospital, possibly drawn there in the first place by his interest in comparative parasitology and in the expectation of adding to his growing collection of entozoa—an expectation fully realized. (Quite consistent with this were his subsequent associations with the veterinarians at McGill.) (vol. 1, pp. 63-64)

And later:

It will be recalled that while in Toronto he was wont to visit veterinarians in connexion with his study and tabulation of animal parasites, and it is evident from the titles he first uses at this time ('Professor of Physiology in the Veterinary College, Montreal' and 'Vice-President of the Montreal Veterinary Medical Association') that his interest in comparative pathology was still sufficiently alive to have induced him to ally himself

*Dr. Harvey Cushing, professor of surgery in the Harvard University School of Medicine, was recently awarded the Pulitzer prize for 1926, amounting to \$1,000, for the best American biography teaching patriotic and unselfish service to the people. Editor.

with this other school. (The veterinary students attended the lectures of Dawson on botany, Girdwood on chemistry and Osler on the 'institutes.' Subsequently the Veterinary College, which had been purely a private venture, became officially a faculty of McGill and on Osler's suggestion was named 'The Faculty of Comparative Medicine.') Accordingly on January 27th he had lectured at the Montreal Veterinary College and was somewhat apologetic for his lack of preparation, though his subject was at his tongue's end.

Several papers on comparative pathology were published during the next few years. In the first of them ('Verminous Bronchitis in Dogs with a Description of a New Parasite.' The *Veterinarian*, Lond., June, 1877, i, 387. His introductory paragraph begins: 'Early in the month of January I was asked by Principal McEachran, F. R. C. V. S., to aid him in the investigation of a disease which had broken out among the pups at the kennels of the Montreal Hunt Club, and which was believed to be of a pneumonic nature.'), read before the *Veterinarian Association* on March 29th, he described a form of bronchopneumonia in dogs due to a previously unknown parasitic nematode. This he incorrectly names, having mistaken its generic identity, and it was subsequently renamed by Cobbold in 1879 the *Filaria Osleri*. (Osler's original designation was *Strongylus canis bronchialis*, but the nematode had none of the characteristics of *Strongylus*. Indeed, despite Cobbold, it has so little in common with *Filaria* that recently a new genus, *Oslerus*, has been proposed for it. Cf. 'Two New Genera of Nematodes, &c.', Maurice C. Hall. *Proceedings of the U. S. National Museum, Washington*, 1921.) He theorized regarding the mode of infection, and probably lack of time prevented him from subjecting his views to the experimental test. Of his other papers on comparative pathology, the more important dealt with hog cholera, echinococcus, bovine tuberculosis, and the parasites in the Montreal pork supply. Until his last days Osler kept in touch with Duncan McEachran, even though their lines of work greatly diverged; and it is perhaps noteworthy that only a year before his death he wrote a review of General Mennessier de la Lance's 'Essai de Bibliographie Hippique,' a volume which had come to his attention. In the last paragraph of the article which appeared in the *London Veterinary Review*, he refers to the fact that he had been a 'former teacher in a Veterinary College' and that therefore felt permitted to offer the author on behalf of the profession in Great Britain congratulations on the completion of his great work. (vol. i, pp. 151-152)

It is inspiring to read that on our veterinary faculties there has been listed the name of this great figure in medicine. A little further, Cushing writes:

On January 23rd, before the Pathological Society in New York, Osler presented the results of one of his more important studies in the domain of comparative pathology. ('On the Pathology of so-called Pig Typhoid.' *Veterinary Journal and Annals of Comparative Pathology*, Lond., 1878, vi, 385. Instead of his actual title, viz. 'Professor of the Institutes of Medicine,' he gave 'Professor of Physiology and Pathology in McGill University and the Veterinary College, Montreal.') He had chanced to hit upon a most baffling epidemic disease affecting hogs, knowledge of which at the time was most meagre and for that matter still remains so, for it appears to be one of those infectious disorders due to what is called a filterable virus, that is, an organism too small for microscopic observation. A trained microscopist, a keen observer and ardent pathologist, had Osler undertaken as Pasteur did just at this time (1877) the study of a simpler disease such as anthrax, the causative agent of which even unstained is easily seen in the blood when examined under the microscope, he might in all possibility have been led to make equally important discoveries. But he had come under Bastian's rather than Pasteur's influence; he never really became an adept in bacteriological technique; and, by the time Pasteur's views had become accepted, had moved on to other fields than experimental medicine and comparative pathology—fields moreover which engrossed him completely.

Pasteur had written to Bastian in July, 1877: 'Do you know why I desire so much to fight and conquer you? It is because you are one of the principal adepts of a medical doctrine which I believe to be fatal to progress in the art of healing—the doctrine of the spontaneity of all diseases.' Naturally enough the younger generation sat back and watched the tilting of these giants, and, until Tyndall entered the lists on Pasteur's side and finally Lister, English-trained youths were naturally imbued with the ideas of spontaneous generation, as Osler seems to have been when he saw the blood platelets apparently transform into bacteria.

This particular epidemic among hogs, which Osler undertook to study, had originally been regarded as a form of anthrax, though latterly the view prevailed that it was the counterpart in hogs of typhoid fever in man, the bacterial origin of which was of course as yet unknown. 'Having in the course of my reading become acquainted with this unsettled state of matter,' Osler wrote, 'I gladly at Principal McEachran's suggestion investigated a local epizooty which had broken out near Quebec in a drove of 300 hogs, hoping that by a series of independent observations the truth of one or the other of these views might be confirmed.' And in the course of his inquiry he not only studied the postmortem appearances of the disease, but performed a few successful experiments by transfer inoculation, drawing the conclusion that the disease bore no relation to typhoid or anthrax, but that it was dysenteric in character though without parallel in human dysentery—a view sustained today, the term 'hog cholera' having been substituted for 'pig typhoid.' (vol. i, pp. 164-165)

In speaking of Osler's introductory lecture to the medical students on the reopening of school, Cushing states in a footnote:

On this same date (October 1, 1878) Osler was giving the opening lecture before the students of the Montreal Veterinary College under the title, 'Comparative Pathology,' a report of his remarks *in extenso* being given in the *Veterinary Journal*, Lond., 1878, vii, 405. After defining pathology as the physiology and microscopical anatomy of disease, he referred to the Contagious Diseases (Animals) Act of 1878 as unjust to the cattle trade and warmly advocated inspection as a protection against hog cholera, Texas fever, and so on. (vol. i, p. 171)

Osler not only interested himself in comparative pathology but evidently made his students assist him as the following embarrassing situation, related by Cushing, indicates:

Incidentally the students were used by the professor from time to time for his own dire purposes, and Ogden one day was sent to perform an autopsy on a horse that had died from some mysterious nervous ailment. It necessitated the removal 'intact and in one piece' of the animal's brain and spinal cord, a difficult enough procedure even for one more experienced, and it took Ogden nearly all day. Not knowing how to dispose of the trophy, it being late afternoon, he took it home and proudly laid it out full length in the family bath-tub, where it unfortunately was first discovered by Buller, who was furiously angry. Osler luckily came in in time to save from harm both specimen and student, and pacified the 'landlord' by agreeing to take the first bath. (vol. i, pp. 176-177)

Cushing reveals another of Osler's traits:

It cannot be unduly emphasized that Osler throughout his life practised what he preached in this respect, and regarded the attendance at medical meetings as one of his obligations, an obligation, moreover, of which he made a pleasure. (vol. i, p. 188)

In 1881 Osler attended a great international medical congress in London. He gives an account of this most important meeting but:

He fails, however, to mention his own important paper before the Pathological Section, on Endocarditis, a subject he was still pursuing; nor does he speak of the session on comparative pathology and the fact that he was a delegate of the Montreal Veterinary Association to the British National Veterinary Congress, whose session he attended on July 20th and of whose proceedings on his return to Montreal he gave a *resume* on October 27th at one of the fortnightly meetings of the Montreal association. (vol. i, p. 190)

As further evidence of Osler's interest in comparative pathology, Cushing recalls:

His interest in parasitology, which, as the natural outcome of his early microscopic studies with Johnson and Bovell, had led him to study and tabulate all the parasites he could identify in man and animals, was still in evidence. He rarely failed to report before one of the societies any chance post-mortem finding which had some bearing on the general subject. Thus on February 17th before the 'Medico-Chi.' he showed an example of bronchiectasis in the lung of a calf, a case of glanders, also a rare specimen of verminous aneurysm from a horse's aorta; and later in the year an example of *Amphistoma conicum* from the paunch of a cow. All this merely serves to indicate his great interest in the study of animal diseases, to satisfy which he continued to hold his position in the Veterinary School.

Throughout this year, in conjunction with one of the veterinary students, A. W. Clement,* he was engaged in an exhaustive study of the parasites of the pork supply of Montreal. In their report, ultimately presented before the Board of Health, January 12th, 1883, they emphasized the necessity of strict governmental supervision over the sources of food supply, and of meat inspection in particular. They dealt particularly with the three more common parasites transmissible to man—trichina, cysticercus and echinococcus—and the amount of labour expended on their studies is indicated by the statement that 1037 hogs were examined, chiefly at the Dominion abattoir, during a period of six to eight months. When this is gauged with what was said in the section on Trichina, namely that in his human autopsies numbering between 800 to 900 Osler had found four cases, it can be seen that their material and experience enabling them to draw comparisons between animals and man, was large. This timely investigation was of great public service and was a contribution to the health and hygiene of the community which probably had more weight as coming from a physician holding no political office than had it originated from some other source. As a by-product of this study he took up, as he had already done with trichinosis, the subject of echinococcus infection in man, being a parasitic disease transferred more commonly from dog to man and a rare condition except in Iceland and Australia. On this quest he visited the museums of New York, Philadelphia, and Washington in search of specimens.

He was engaged at this same time in another piece of work of similar nature, though it pertained to a purely animal disease produced by a parasite, namely, cestode tuberculosis. (Presented before the Montreal Veterinary Association, January 19, 1882. *American Veterinary Review*, Apr., 1882, vi, 6-10.) This study was also carried out in conjunction with Mr. A. W. Clement, and they recorded a successful feeding experiment with the production of the disease in the calf—an experiment undertaken to afford the students of the Veterinary College an opportunity of studying the development of the symptoms. (vol. i, pp. 197-198)

It was at this time that Koch made his epochal announcement of the discovery of the tubercle bacillus before the Physiological Society in Berlin (Mar. 24, 1882), as recorded by Cushing:

*The A. W. Clement here referred to as a veterinary student was graduated from McGill in 1882. He was connected with the institution in a teaching capacity, from 1882 to 1885. He then studied abroad for several years and after his return to America was attached to Johns Hopkins University, engaged in research work. He later entered the Bureau of Animal Industry, was state veterinarian of Maryland, and served as president of the American Veterinary Medical Association, 1898-99. He died March 3, 1901, in his 44th year. Editor.

Koch's celebrated address ended with the statement that when the idea of the infectious nature of tuberculosis had taken root among physicians the means of warfare suited to contend with this enemy would be elaborated. It was along these lines that Osler's subsequent work in connexion with tuberculosis mainly lay, and in later years he became one of the chief leaders in the antituberculosis crusade. But even prior to Koch's pronouncement he had seen the light. For as Dr. Duncan McEachran recalls ('Osler and the Montreal Veterinary College.' *Journal of the Canadian Medical Association*, 1920), at one of the early meetings of the 'Medico-Chi.' after he had given an address on the contagious character of bovine tuberculosis, Osler expressed the opinion that tuberculosis was spread by contagion in the human species also and advocated a campaign to popularize this view. But it was urged by others that this would merely cause public alarm and that the apparent hereditary character of the disease could sufficiently well account for its occurrence in the several members of a family. (The idea of contagion did not reach the public for another twenty years, not until after the Tuberculosis Congress in London in 1901, on which occasion McEachran was the representative of Canada, and Osler of the United States.)

On the heels of this gathering, the Canadian Medical Association, of which he was still the General Secretary, held its annual meeting in Toronto, where he not only read his paper on Echinococcus Disease, but also gave a demonstration of the newly discovered bacilli of anthrax and tuberculosis. (This paper 'On Echinococcus Disease in America,' was a statistical study of sixty-one cases gathered from various sources, together with his own personal observations. He signs himself as 'Lecturer on Helminthology, Montreal Veterinary College.' Cf. *American Journal of the Medical Sciences*, Oct., 1882, lxxxiv, 475-80.) (vol. i, pp. 200-201)

Cushing also reveals Osler's interest in comparative anatomy:

During this autumn and the winter of 1883-4 the usual miscellany of case reports was read before the 'Medico-Chi.', including the exhibition of further postmortem specimens from the Veterinary College. Before the naturalists, too, on October 29th, he gave a paper on the comparative anatomy of 'The Brain of the Seal,' illustrated by many prepared specimens of the brains of various animals. (vol. i, p. 207)

In 1884, from Leipzig, Osler writes:

I go there (Cohnheim's Laboratory) at 8 a. m. work until 10:30 at Bacteria, then go to Leuckart's laboratory until 1 p. m. when I dine and return to Weigert or go to Zurn's assistant at the Veterinary School.

A very significant sentence, but of course not especially significant to veterinarians, appears in this same letter.

Lord! don't I wish I could live all the year around for 120 marks a month (beer included). (vol. i, p. 216)

Cushing resumes:

During the short span of years since his McGill appointment he had stirred to activity the slumbering Medico-Chirurgical Society; he had founded and supported a students' medical club; he had brought the Veterinary School into relation with the University; he had introduced the modern method of teaching physiology; had edited the first clinical and pathological reports of a Canadian hospital; had recorded nearly a thousand autopsies and made innumerable museum preparations of the most important specimens; he had written countless papers, many of them ephemeral it is true, but most of them on topics of live interest for the time, and a few of them epoch-making; he had worked at biology and pathology both human and comparative, as well as at the bedside; he had shown courage in taking the small-pox wards, charity in his dealings with his fellow physicians in and out of his own school, generosity to his students, fidelity to his task; and his many uncommon qualities had earned him popularity unsought and of a most unusual degree. (vol. i, p. 228)

Osler filled the chair of Clinical Medicine at the University of Pennsylvania from 1884 to 1889. The year of his arrival in Philadelphia also marked the opening of the University of Pennsylvania School of Veterinary Medicine. Cushing states:

Just as in Montreal it was seldom that he did not have some interesting specimen to show, some new technical method to demonstrate, or some subject of interest to present in relation to comparative pathology; for though the opportunity in Philadelphia was less, since the Veterinary Department of the University had only just been established, he took advantage of every possible occasion to pursue his studies of disease in the lower animals. (vol. i, p. 250)

Showing that his mind was always open to matters of comparative pathology, he writes in 1885 to a Canadian confrere, "That glanders case will make an interesting communication. I hope Howard has saved some specimens."

Osler was a tireless writer, a contributor to the medical press, both of scientific papers and editorials. His biographer speaks of this:

Many of the editorials, like those on the recent discoveries concerning actinomycosis and hydrophobia, are an indication of his continued interest in the diseases common to man and animals. None of the newer subjects escaped him, and many of the editorials were reviews of the more recent papers in the leading French and German periodicals to which he had access at the College of Physicians. One may identify many of the editorials by internal evidence, as that on the 'Death of Dr. Wm. B. Carpenter' (*Medical News*, Nov. 14, 1885, xlvi, 546), whose name he couples with that of Huxley and Owen and whose works on Comparative Pathology and the Microscope, were often consulted in his days at Weston with 'Father' Johnson. (vol. i, p. 262)

He was a very thorough student of the blood, being one of the foremost in the profession to take up the study of malarial parasites, as the following comment of Cushing indicates:

Haematozoa had also been seen in fish, in rats, in birds; and he gave an account of Surra, a disease affecting the horses, mules, and camels in India, which his friend Griffith Evans had recently described in the London *Veterinary Journal*, attributing it to a blood parasite. (In the copy of Evans' "Report on 'Surra' Disease" (1885) in Osler's library, he has written: 'When I was a student with Bovell at Toronto, 1868-9, Griffith Evans, who was stationed there as veterinary surgeon to the Artillery, was much interested in the microscope and frequently came to Bovell's room to help in the preparation of specimens. He had previously been stationed at Montreal, where he had graduated in medicine from McGill in 1864. When serving in India he made the discovery of the parasites in the blood in Surra—the first trypanosome disease to be described. On his retirement he went to Bangor, where he still lives, a hale, hearty octogenarian. He sent this, and a book of photographs of famine scenes in India, 8 Jan., 1918.') Osler regarded the flagellate form as the adult condition of the malarial plasmodium; but it remained for one of the Johns Hopkins students, W. G. MacCallum, while studying malaria in birds, to first observe the conjugation of the organisms and thus fully to explain their flagellate form. (vol. i, p. 274)

Again:

Osler stated that he had made a series of observations on the blood of fishes and birds, in view of the statement that some of the forms described by Laveran had been found in the blood of carp and some water-

fowl. Professor Baird of Woods Hole had offered him facilities for this work and had furnished him with forty-five carp in which he had failed to detect organisms. Nevertheless, in the blood of a goose sent him from Ontario by Dr. G. A. MacCallum (father of his pupil W. G.) with the statement that the bird had malaria, he had found one or two pigmented bodies. They were not numerous, however, nor was the temperature elevated; nor, so far as could be made out, did the goose have chills. (vol. i, p. 279)

In 1889 Osler, leaving the University of Pennsylvania, became attached to the Johns Hopkins Hospital, where for fifteen years he made medical history. Cushing records:

Thus in December there appeared the first number of the *Johns Hopkins Hospital Bulletin*, which was to play such an important part in bringing the activities of the hospital group before the medical world. The first number contained a preliminary account of Welch's studies on hog cholera, and a further statement from Osler on the value of Laveran's organism in the diagnosis of malaria, . . . (vol. i, p. 322)

At a meeting of the Association of Physicians, in Washington, in 1893, Osler took a prominent part in the program, which, of course, dealt largely with human medicine. Tuberculosis was beginning to receive some consideration but, as Cushing says:

Unquestionably, however, the most notable communication was that made by Theobald Smith on the 'Texas Cattle Fever' in its relation to protozoan diseases. Through his results had previously been published by the Government Bureau of Animal Industry, this was the first time his epochal discovery—a pathogenic micro-organism which could be transmitted only through the agency of an intermediary host (in this case the cattle tick)—was brought before the profession. The paper was briefly discussed by Welch alone, and one wonders whether the great significance of the discovery, which was to be followed by a succession of others—the mosquito in malaria and in yellow fever, the tsetse fly in sleeping-sickness, the flea in plague, the louse in typhus—could then have been fully taken in by the majority of Theobald Smith's auditors. (vol. i, p. 382)

While of course Osler had nothing to do with the discovery of the cause of Texas fever, it is interesting to note that this discovery and many others, as years went on, were announced in the medical press and in meetings where he had an opportunity to discuss and encourage by his unusually sympathetic attitude toward all things of interest to medicine, whether human or veterinary. He certainly was not the less a great figure in human medicine because of his interest in veterinary medicine. Who knows but that his greatness in the field of medicine is not justly attributable to his deep interest in comparative pathology?

Osler was noted for his contempt of a world ruled "by the doctors that want to use therapeutic methods they do not understand." (Arrowsmith) He had very little use for drugs and was a leading exponent of preventive medicine. Of a symposium held in Baltimore, on the subject of 'Typhoid Fever in Country Districts,' Cushing writes:

He opened the session with a paper in which he urged the regular inspection of dairy farms, measures to prevent the contamination of the water supply, and the compulsory notification of every case of typhoid before an official State Board of Health. There were radical recommendations, and in no uncertain terms he gave warning that the Baltimore death-rate from typhoid never would be reduced to the ratio of modern cities until the local cesspool system of drainage was completely abolished and the city took over the control of the watersheds of the Gunpowder River and Jones's Falls. He had good reason to enter the lists in favor of these necessary reforms, for at the time Arthur Oppenheim, one of his assistant residents, was lying ill at the hospital with what proved to be a fatal attack of this preventable malady; nor was he to be the only victim of typhoid among the hospital family. (vol. i, pp. 413-414)

May he not be considered the father of much of our modern veterinary sanitary inspection?

To the veterinarians who were so royally entertained by their Canadian brethren at Montreal, in 1923, an extract from an Osler address before the British Medical Association, which ventured to hold one of its meetings overseas, will be appreciated. In writing of the occasion, Cushing observes:

Speaking more as a Canadian than an American, he dwelt on 'certain of the factors which have moulded the profession in English-speaking lands beyond the narrow seas—of British Medicine in Greater Britain.'

"Evolution (Osler said) advances by such slow and imperceptible degrees that to those who are part of it the finger of time scarcely seems to move. Even the great epochs are seldom apparent to the participators. During the last century neither the colonists nor the mother country appreciated the thrilling interest of the long-fought duel for the possession of this continent. The acts and scenes of the drama to them detached, isolated and independent, now glide like dissolving views into each other, and in the vitascope of history we can see the true sequence of events. That we can meet here today, Britons on British soil, in a French province, is one of the far-off results of that struggle. This was but a prelude to the other great event of the eighteenth century: the revolt of the colonies and the founding of a second great English-speaking nation—in the words of Bishop Berkeley's prophecy, 'Time's noblest offspring.' Surely a unique spectacle that a century later descendants of the actors of these two great dramas should meet in an English city in New France! Here the American may forget Yorktown in Louisbourg, and the Englishman Bunker Hill in Quebec, and the Frenchman both Louisbourg and Quebec in Châteauguay; while we Canadians—English and French—in a forgiving spirit, overlooking your unseemly quarrels, are only too happy to welcome you to our country—this land on which and for which you have so often fought." (vol. i, p. 458)

This of course has nothing to do with veterinary medicine but it gives us who have so few opportunities an insight into the technic of promoting a better international understanding. 'For above all nations is humanity,' and surely science recognizes no boundary lines—political, social, or professional.

In reviewing Cushing's *Life of Osler* one is tempted to include everything, exclude nothing; not only direct quotations but an endless amount of worthwhile material, suggested by every quotation, comes to one's mind and seeks a place on the printed page. However, this must be brought to a close.

Reference has already been made to events observed by Osler but in which he was not necessarily the chief actor. The British Congress on Tuberculosis, the second of these special congresses held on an international basis, opened July 22, 1901, in London. Cushing records:

During the serious sessions of the congress which followed, the outstanding and, be it said, somewhat disconcerting, episode occurred on the second day, when, introduced by Lord Lister, 'Geh. Med. Rath. Professor Dr. Robert Koch, Direktor des Instituts für Infektionskrankheiten in Berlin,' discoverer of the tubercle bacillus, gave a notable address, a certain portion of which provoked most unexpected commotion. Koch gave an exceedingly interesting analysis of the way in which different infectious diseases must be combated, and laid down a most sensible program for the fight against tuberculosis. Much of the value of this was lost, however, because of the one section of his paper in which he dwelt on the difference between human and bovine tuberculosis. For what riveted the attention of his audience to the exclusion of all else was his statement that human tuberculosis was practically non-transmissible to animals; that the reverse was probably also true; and consequently that the attempt by legislative action, particularly rigorous in England, to stamp out the disease in cattle as a source of human infection, had been misdirected. This led to a storm of protest and disagreement among sanitarians, which lies outside the story. Suffice it to say that Koch again, as with his tuberculin, had been a little premature in his conclusions; and in the discussion that immediately followed the address, Lister with extreme clearness of thought promptly put his finger on the weak point in the deductions of Koch drawn from his experiments. (In these experiments Koch had shown that it was impossible to infect cattle, swine, or other animals with the bacillus taken from cases of pulmonary consumption in man, whereas they were readily susceptible to transmission of infected material from animal to animal. The reverse experiment of course, could not be tried without personal sanction of a group of human volunteers. However, involuntarily, experiments are continually being conducted, particularly in the case of children who are fed on butter and milk containing living bacilli from infected animals. Koch did not believe tuberculosis could be contracted by humans in this way. Others who disagreed with him were apparently correct, but his, just then, was the greater voice. The aftermath of all this can be followed in the correspondence, editorials, etc., in the *British Medical Journal* of July 27, 1901, and succeeding issues. It may be said that a Royal Commission on Tuberculosis was soon appointed which sat for ten years, with a net expenditure of 75,557 pounds, and published an elaborate report in 1911, to the effect that man is infecible by the bovine bacillus, Professor Koch notwithstanding.) (vol. i, pp. 560-561)

I have found that the veterinarians, especially the country practitioner, is something of a philosopher. The scientist turning philosophical in his advancing years has a certain fascination for me. It will be remembered that Osler, upon preparing to leave America for Oxford, England, opened his mouth and put his foot in it, as the vernacular has it; or, to state the case more accurately, the press of America, as is its wont, made it appear that he had said something to the effect that man was of little use after forty for productive works and might as well be chloroformed at sixty. At least Osler opened his mouth and the press put his foot in it. Two years later, at Oxford, Osler writes:

To this edition (second edition of his 'Aequanimitas'), I have added the three valedictory addresses delivered before leaving America. One of these—'The Fixed Period'—demands a word of explanation. 'To interpose a little ease,' to relieve a situation of singular sadness, I jokingly suggested for the relief of a senile professoriate an extension of Anthony Trollope's plan mentioned in his novel 'The Fixed Period.' To one who had all his life been devoted to old men, it is not a little distressing to be placarded in a worldwide way as their sworn enemy, and to every man over sixty whose spirit I may have unwittingly bruised, I tender my heartfelt regrets. Let me add, however, that the discussion which followed has not changed, but rather strengthened my belief that the real work of life is done before the fortieth year and that after the sixtieth year it would be best for the world and for ourselves if men rested from their labours. (vol. i, p. 670)

When Osler left the States, in 1905, to become Regius Professor of Medicine at Oxford, he must have found little time for veterinary medicine. He devoted a great deal of his time to fighting the anti-vivisectionists.

His affection for Dr. Duncan McEachran, of the Veterinary School in Montral, is revealed in the following letter:

Sept. 9, 1912.

DEAR MAC: Do let me know when you reach England. I send this on chance to the Bank of Montreal. We should be so glad to see you here. Come and spend a night and I will motor you to Banbury the next day. Sincerely yours. (vol. ii, p. 332)

His interest in agriculture is indicated by the following experience in connection with hog cholera, recorded by Cushing:

According to *The Times*, on this same Saturday (May 2, 1914) was held 'a discussion of great importance not only to agriculturists but to the medical and veterinary professions and the public in general,' which took place at a meeting of the Berks and Oxon Chamber of Agriculture. It was called to act on a resolution—'that further research in swine fever should be undertaken at one or more university centers as well as at the Government Laboratory at Alperton.' Osler's interest in comparative pathology which went back to his early Toronto and McGill days, may be recalled; and the agitation seems to have arisen from the question whether universities—and particularly Cambridge, where Dr. George H. F. Nuttall was especially fitted to undertake research in this direction—should participate in it, or whether it should be a purely governmental affair, for under these circumstances research was apt to be biased and its results often pigeon-holed. Osler is quoted as saying at the meeting that 'there was nothing like a row for doing good. Until the the pool was troubled by the angel the waters had no healing. Therefore they owed the Chairman (the President of the Chamber) a debt of gratitude; the problem of swine fever would benefit and no harm be done. The officials of public bodies did not take offence. They were thick-skinned.' To this Sir John McFadyean replied: 'One needs to be.' And Osler answered: 'I know, and you are.' (vol. ii, p. 406)

Sir William (for in the meantime he had been knighted) was a most enthusiastic bibliophile. In January, 1918, according to Cushing:

He appears to have taken to bed with him an unusual book, the 'Essai de Bibliographie Hippique' by General Menessier de la Lancee, the last volume of which had recently been published. How he learned of these volumes does not appear—possibly the Bibliography part of the title drew them into his net—it could not have been the Horse—he does not appear to have ridden one since the day in Dundas when he 'got the sack!' But the books went to

his heart. The retired French General had succeeded in doing for the literature of his subject precisely what Osler hoped to do with his own library. And his review of the volume, which begins as follows, was written with his old zest:

"Not naturally dry, bibliography is too often made so by faulty treatment. What more arid than long lists of titles, as dreary as the genealogies of the Old Testament, or as the catalogue of the ships in Homer! What more fascinating, on the other hand, than the story of the book as part of the life of the man who wrote it—the bio-bibliography! Such, for example, is the recent bibliography of Samuel Johnson, issued by the Oxford Press, from the pen of that master of the subject, the late William Prideaux Courtney, which shows us, even better than does Boswell, the working ways of the great lexicographer. To be of value to the full-fed student of today a bibliography should be a *Catalogue raisonné*, with judicious remarks and explanations. In our great libraries this is impossible from lack of space, but the plan is followed with great advantage in the special bibliographies, of which this work before us is a model of its kind. . . ."

Cushing interpolates:

He goes on to tell how he had put the volumes to the test, all of which indicated with what delight he had gone through them, doubtless with his own bibliographical project in mind; and after commenting on the high plane of veterinary science across the Channel, he (Osler) ends thus:

"Students of the horse in all its relations owe a deep debt of gratitude to General Mennessier de la Lance for this comprehensive and valuable work, so full of accurate and careful scholarship. As a former teacher in a Veterinary College I may be permitted to offer him on behalf of the profession in Great Britain our congratulations on its completion, and our heartfelt wishes that he may be spared to see final victory crown the Army of which he has been so distinguished a member." (vol. ii, pp. 592-593)

Surely there is no reading so satisfying as good biography.

GLAND GRAFTING OPERATION

A gland-grafting story of dramatic character is reported in Paris from the town of Lille. A nine-year-old girl had been an idiot all her life, due to certain glandular deficiencies. There was in the prison at Lille a convict who had been sentenced to the guillotine. Local surgeons decided to attempt a transplantation of the thyroid gland from the criminal's throat, under the skin of the child, and immediately after the execution this was done.

The surgeons then kept the child under close observations for several months, before they undertook to report the case. Their statement is that at the end of three months an improvement in the child's mental state began to be apparent, and that at the end of nine months, when their port was made, she had the understanding, behavior and vocabulary of a normal child of her years.

—*Science.*

THE VALUE OF THE VETERINARY RESERVE OFFICERS TRAINING CORPS TO THE STUDENT AND THE NATION*

By HARRISON J. SEAMAN, Columbus, Ohio

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The Reserve Officers Training Corps, as it now exists in numerous colleges and universities, is an efficient and economical form of national defense. It is the most democratic form of military training ever established, maintaining and preserving the principles upon which this government was founded and has always existed. It aids in a better understanding among college men of true American traditions and principles. It teaches loyalty, patriotism and good citizenship.

The values of the Veterinary Reserve Officers Training Corps, which is a branch of the Reserve Officers Training Corps under the jurisdiction of the War Department, are far-reaching, not only to the student involved, but to the veterinary profession as a whole and to the nation. Especially in time of peace this form of military training is apt to be rated far below its real value, since there has never been any need of trained forces since its origin; but if an emergency were to arise this form of military training would be of great value, both from a military and an economic standpoint. There are many benefits derived from military training when given in connection with higher education, that the average individual is apt to overlook.

COOPERATION

Of premier importance to any member of a community, but especially to the professional man, is a thorough understanding of the values of cooperation. Any individual who is willing and sincere in his efforts to cooperate with other individuals or groups of individuals with which he comes in contact, is an asset and not a liability to his community. The professional man is before the public eye at all times and the most ethical and efficient way of advertising is to show a willingness to cooperate and a willingness to be a part of an organization.

*Awarded first prize of \$50.00, in the 1926 essay contest. Prize offered by the American Veterinary Medical Association. Subject selected and essays judged by the Director of the Army Veterinary Corps., Lt. Col. J. A. McKinnon.

Unfortunately there is little in the curriculum of the average university which tends to emphasize the value of cooperation. From this standpoint the training received while enrolled in the Reserve Officers Training Corps has been of the greatest value to the student. Military training tends to make the student realize the efficiency which results from cooperation, since he has had an opportunity to be a member of an organization which could not properly function without cooperation on the part of every member. Wherever large numbers are involved, efficiency comes only through cooperation.

In cases of animal management, eradication and control of disease, sanitation, hygiene and problems of public health, the people of a community naturally turn to their veterinarian for help and advice, and he should be willing and able to cooperate not only with them but with members of his and other professions. The problems of the individual practitioner of veterinary medicine are the problems of the veterinary profession as a whole, and a combined and concentrated effort to solve these problems will go a long way toward putting it on a firmer basis. This can be done only through cooperation of the members of the profession. Cooperation may not necessarily mean added financial compensation, but it does mean a better understanding between the practicing veterinarian and his clients, and between the members of the veterinary profession.

DISCIPLINE

No one doubts the value of military training in regards to discipline, and no one doubts the value of discipline once he has learned it. Young men enter the colleges and universities of this country from all types and classes of homes. Some have learned the meaning of discipline and others have not. The class-room is not the place to attempt to teach it. Discipline should be included in the curriculum in some form, however, and should not be left to upper classmen or honorary societies. Discipline tends to teach the value of and the necessity for punctuality, obedience, respect for superiors and a better understanding of the qualifications of a well-bred and well-educated individual. The average college graduate would be much better educated and more able to combat the problems of life, if discipline had been a part of his education. There would be much more respect and more cooperation between the faculty and student body in our universities if some form of official dress

were established, and if military discipline and courtesies were rigidly enforced. It would do away with a great number of unexcused absences and tardinesses, and would tend to bring the faculty and student body in closer contact. Men who go out from colleges and universities are regarded as leaders in their particular lines of work, and they will all be in a better position to give orders if they have first learned how to take orders.

No one who has been a member of the Reserve Officers Training Corps doubts its value as to discipline, but the student who schedules all his classes in the afternoons and then is unable to get up in time for them, not only doubts the value of military training, but he does not intend to allow anyone to convince him that it is of some value. There should be more students who are willing to derive the benefits from a well-earned education, and a lesser number who go to college to rest up, or because it is the fashionable thing to do. A degree from a college or a university may not mean an educated individual, since a great many young men are graduated from institutions of higher learning with less real education than when they started, with shattered nerves and shattered morale, more of a liability than an asset to themselves or to anyone else.

At the present time there is a growing movement to disregard the law; more moral corruption and more crime waves than ever before. It is impossible to train the hardened criminal to know what discipline means, or the benefits derived from a well-regulated life, but it should not be impossible to train the college youth. College men should be taught the values resulting from and the necessities for discipline, as well as the fact that if a law is to be of any value it must be obeyed. Colleges and universities will turn out men who are capable of being leaders in a large proportion, only when more discipline and less Charlston is learned.

SPECIFIC TRAINING

Members of all professions should be specialists in their particular lines of work. General education is useful and necessary, but this is the age of professions and specialists. It would therefore seem that branches of study which pertain to certain phases of veterinary science would be of value to the student. Textbooks are out of date as soon as they are printed or revised and, if instruction is to be useful, it must be modern. It has been hinted by leaders in the field of veterinary medicine that the

medicine of the future would be preventive, yet no changes have been made in the curriculum of our veterinary schools. The instruction received from the courses combined in the Veterinary Reserve Officers Training Corps is modern in every respect, and is given by men who combine theory with the practical side. The greater number of problems considered in the class-room are not covered in text-books, and yet are met with almost daily in practice.

The trained army veterinarian is well versed on all phases of preventive medicine, since he has been in contact with it ever since he entered the Army. Some of the most practical and yet scientific training possible in a veterinary college comes from the trained army veterinarian, detailed as an instructor in the Veterinary Reserve Officers Training Corps.

The instructor is selected from among a large number of army veterinarians, and his training and experience have been such that he is ably fitted for the position. They are aggressive and modern and the instruction given by them is far superior to that given from a text-book which has been out of date for the last twenty years, or to lectures prepared years ago, when a professor first began to teach. Students enrolled in classes taught by regular army veterinary officers receive instruction which is far superior to any other received while in college. Sound and practical problems of animal management, animal management under adverse conditions, and prevention of disease are carefully studied and an understanding of these problems will tend to fit the student for the medicine he will be forced to practice in the future—that of prevention and eradication.

CITIZENSHIP

Nations have always been formed and maintained, or destroyed, by war and until every civilized nation completely disarms, they will continue to be. As civilization progresses, war may be replaced by some form of arbitration, but so far the higher the degree of civilization attained, the more deadly and terrible war has become. The United States is not a warring nation and has never fought a war for conquest, yet in the last century the American flag has been carried into more wars than the flag of either England or France. This nation has never fought a dishonorable war, nor has it ever been forced to bow to defeat, due not to the deeds of any certain individual, but due to the loyalty and patriotism of the American citizens.

This summer they are celebrating, in the city of Philadelphia, the one hundred fiftieth anniversary of the signing of the Declaration of Independence. This celebration should be of some significance to every American, and we should realize as never before the meaning of true American citizenship, and that living under the protection of the American flag is not the only essential. The men who established the American government did so only after untold hardships, and many of them never lived to realize the meaning of the new liberty and freedom which came with the establishment of the American government. It is the citizens of today who are directly benefited by the sacrifice made by the patriots of 1776, and we owe it to the memory of those first American citizens to be worthy of true American citizenship.

During the time when this government was being formed, and all down through the years when it has been in danger, the citizens of this country have rallied behind their flag and have been willing to sacrifice everything, that this government might survive, and that liberty and freedom might remain. In revolutionary times the opposite of a true American citizen was a Tory or a traitor, but today we call them aliens or pacifists. We must all be citizens and we must be able to realize our duties as such. Citizenship must be universal, there must be no little Russia, no little China; nor any little Italy, where the English language is unknown, and where the red flag of Bolshevism replaces the Stars and Stripes.

But above all this there must be a spirit of loyalty and a spirit of patriotism. Is it possible that the youth of today is disregarding American citizenship and is substituting something in its place? Contrast the soldier of Valley Forge, improperly clothed and fed, almost without shelter and serving without pay, willing to sacrifice everything for a principle, and the college youth of today who objects to two hours of military training each week because it is too strenuous. There has never been a time in the history of this nation when universal citizenship was as much in need as it is at the present time. History presents to us many traditions which stand for loyalty and patriotism, and we must not in an unthoughtful hour disregard our heritage, to be true, loyal and useful American citizens.

The rank and file of citizens have always been ready to defend their flag in time of danger, and they would again, if the occasion arose, but masses of untrained men are of no value in war today.

All nations must have some form of military policy, and the Reserve Officers Training Corps is the most sensible form of military training ever established by any government. It is our duty as citizens not only to be willing to defend our flag, but to become trained so we will be of some use in time of war, since war is a battle between specialists, scientists and well-trained armies. The spirit of the minute men who fought at Lexington was above reproach, but such an army would be of little or no use in a modern war. There must be leaders, men who are well educated and who are specialists in their particular lines of work, and in this connection the Reserve Officers Training Corps is an invaluable aid. It fits, as leaders, men who are educated and who are capable of intensive thought and study. These men form the nucleus around which the army would be built, should war come. Thus the professional man of every degree and profession is in direct contact with the War Department at all times and, should the occasion arise, he can be placed in a position where he can best carry out the line of work for which he is best fitted. No war has ever been won without transportation, and under adverse conditions the animal-drawn units are still the most efficient and effective and, therefore, along with other professions, the trained veterinarian is still needed in the army in time of war.

True American citizenship should be the aim of every individual, and if the college youths of today are taught what patriotism and loyalty mean, what respect for law and order means, and what a true American citizen is, they are better fitted for life than with an abundance of scientific or general learning. We do not need more laws, we do not need more or stricter enforcement of laws, but we do need a better type and a better class of citizenship.

If the military training received while in college tends to make the student realize the necessity and value of true citizenship, the good derived greatly counterbalances any undesirable effects and is of untold value, primarily to the individual and secondarily to the nation in general. The aim of every institution of higher learning should be to produce well-trained, well-educated, healthy American citizens, loyal to their flag in time of peace as well as in time of war. In time of war anyone can be patriotic, but it is in time of peace that it takes citizenship to be a loyal and useful American.

GENERAL EDUCATION

Along with special and specific education, military training fits the college youth for his battle with life more completely and more thoroughly than any other one course of study. Especially is this true in the case of the student of veterinary medicine. In the advanced courses the members of the Veterinary Reserve Officers Training Corps are sent to camp for a period of six weeks of intensive drill. This camp is held in connection with units from both medical and dental schools, and the work is much the same for all three units. This summer camp does more than any other one thing, during the entire four-year course, to make the student realize that the profession for which he is studying is as far advanced and as necessary as either the medical or the dental profession. Veterinary students are in intimate contact with medical and dental students, and it is often as much a surprise to the veterinary student as to the others, that he is as well versed on such subjects as bacteriology, pathology, physiology, chemistry and, in fact, nearly all the courses which are not entirely specific as they are. It aids in raising the veterinary profession to a plane with dentistry and medicine, especially in the minds of the students themselves. Then, too, it often is an opportunity for the student to become broadened through travel, since it affords an opportunity to visit some of the places which were so prominent through all the years of history. It also aids in a better understanding of the army in general. No one can be in contact with the type of officers who are in charge of the Reserve Officers Training Corps, either at the summer camp or at the colleges, and not be impressed by the high type and the high character of these men.

HEALTH

There is no doubt but that military training does more than any other thing in promoting health, especially to the student who has no other form of exercise. It aids in a better body-carriage, better co-ordination and better health than any other form of exercise available to the college man. It tends to balance the development of mind and body, something which is quite apt to be overlooked unless there is some form of compulsory exercise. Even if this were to be resorted to, if large numbers were considered, military training would be the most efficient and the most effective.

SUMMARY

1. The Reserve Officers Training Corps is an efficient and economical means of national defense.
2. It aids in the building and maintaining of a better type of citizenship.
3. It gives the student a better understanding of the United States Army and of the men who are connected with it.
4. It promotes better health among the student body.
5. It teaches discipline and makes the student realize that discipline is necessary and important.
6. It trains as leaders college men who have a better general and specific education than officers who are graduated from an officers training camp, after only three months of training.
7. It prepares a nucleus around which a powerful, well-trained army could soon be built.
8. It is more important and less expensive than compulsory military training for each individual during some year of his life, when he would be taken away from all industry and would have to be taken care of by the government.
9. It is educational, both from a general and specific standpoint.
10. It allows the student of veterinary medicine to realize that the profession for which he is studying is as far advanced and as important as any other profession.
11. It aids in a better understanding of the value of co-operation.
12. It teaches obedience, promptness and punctuality.
13. Military training, in connection with higher education, helps the student to realize his debt to his government, as well as the privileges afforded to an American citizen. It allows the student to realize that he is a part of the government, and that his influence may at some time aid in shaping the destiny of the nation. Therefore it is a duty and a privilege, which offers many advantages and but few disadvantages.

The recent industrial strike in Great Britain forced the *Veterinary Record* (London) to suspend publication for two weeks during May. Publication was resumed with the three-in-one issue of May 22, 1926. This issue was designated numbers 19, 20 and 21 of volume vi.

TUBERCULOUS ABORTION AMONG CATTLE*

By N. PLUM

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under the direction of the Division of Veterinary Medicine
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Abortion resulting from tuberculous metritis attacking the placenta and causing it to loosen has received considerable study in recent years in Denmark. Professor B. Bang has previously reported on six, A. Thomsen on two and N. Plum briefly on eighty cases. In the annual report of the Kings Veterinary and Agricultural High School, Thomsen reports on fourteen cases, including the two mentioned previously.

From thirteen of these, products were injected subcutaneously into guinea pigs. Nine of these resulted in generalized tuberculosis, while two injected from other sources showed only abscesses (containing acid-fast rods) in the inguinal glands and after five or six weeks did not show any signs of tuberculosis whatever. The two cows responsible did not react to the tuberculin test and one came from a tuberculosis-free herd. This cow, at the direction of Thomsen, was injected with paratuberculin, because he thought possibly the acid-fast bacilli might be para-tubercle bacilli, but no reaction resulted. Both of these cows were sold soon thereafter, so the study of them ceased.

The study was again taken up at the "Veterinar Fysikatets" laboratory and injections were made from cases of tuberculous abortions. Veterinarians sending in samples were requested to furnish all possible information regarding the condition of cow and calf and also the exact time of abortion.

The material studied was sent to the laboratory for diagnosis for contagious abortion and consisted chiefly of placentas and in one case a uterus.

A review of the literature relating to human uterine tuberculosis is given. Three types or forms are recognized: (1) acute tuberculosis of the uterus; (2) the interstitial; and (3) the ulcerative form. The latter is most common and is, therefore, most carefully described—it being recognized that the three types are really three stages of the disease rather than three forms and the ulcerative form is the last one.

*Maanedsskrift for Dyrlæge, Sept. 1924, pp. 321-371.

In the first place, it is very difficult to observe the tubercle bacilli because apparently they are present only in very small numbers. Peraire is the only investigator to report having seen or shown any number of tubercle bacilli in every case. It is doubtful, however, whether he actually did see them because no one else has ever done so.

It is possible that tuberculosis of the uterus may be primary, but it must be regarded as rare. Infection by tuberculous sperm was held to be the cause or means of infection until Baumgarten and Basso found that the sperm from a man affected with tuberculosis of the lungs rarely, if ever, carried the bacilli.

It has generally been supposed that, in man, tuberculosis of the genitals followed the streams of secretion—beginning in the testes and spreading to the vas deferens. Similarly Baumgarten and Basso hold that it spreads in woman. Their idea is that primary tuberculosis of the uterus is possible but rare. Infection by sperm carrying tubercle bacilli is also possible but rare, infection through the fallopian tubes, descending from peritoneal tuberculosis, being the usual method. An ascending infection from vaginal or cervical tuberculosis to the uterus seems impossible.

TUBERCULOUS SALPINGITIS

In contradiction to this, however, is the experience of various surgeons who have often seen cases in women of tuberculous salpingitis alone, without any relation to the peritoneum or uterus. The results with humans are, therefore, not clearly understood and consequently of little aid in understanding the situation in the bovine. In one case reported the infection became located in the uterus, apparently having originated from poultry tuberculosis, infection gaining entrance through the food.

In regard to the frequency of tuberculous abortion, Thomsen has found about 1.4 per cent of the cases he examined to be of that type. Plum found it occurred in 1.79 per cent of the 834 cases examined by him and expressed it as his opinion that the correct percentage was over 2 per cent. There was no systematic method of research made in the foregoing series, however, and the substantiation of the cases depends on whether the investigators had entertained any suspicion of tuberculous abortion, either through the information given them or after examination of the after-birth, along with a negative finding of abortion

bacilli. It is, therefore, impossible to come to any definite conclusion as to whether the percentage of cases is higher than 1.4 per cent or not, but that point is of minor interest; the important matter is that the cases are not rare.

The microscopical diagnosis is always undertaken with staining, according to the method of Ziehl-Neelsen. It has been shown that early studies have overrated the ease with which the diagnosis could be made by this method. It has been definitely shown in earlier studies that one must be careful to get the stain thoroughly mixed with the fuchsolin solution; but in a few cases it has been almost impossible to get a distinct, clear-cut coloring of the bacilli. The bacilli in these few cases are colored with such difficulty that they are visible only as very fine, pale rods with a few quite-well-colored bacilli, all of more or less natural appearance.

MICROSCOPICAL DIAGNOSIS

The microscopic diagnosis under these circumstances is not easy to make, because the microscopist who is not accustomed to staining tubercle bacilli will consider the method an entire failure and, besides, the whole smear may easily acquire a reddish tinge by this method of staining.

The power to take up color does not appear to bear any relation to other characteristics, as, for example, virulence.

The bacilli have almost always been found to be present in large numbers and, like abortion bacilli, they show a tendency to lie in intracellular groups. In a single case, they were present in such large numbers that when the preparation was stained with methylene-blue for examination for abortion bacilli, the blue-colored tubercle bacilli appeared in large heaps very much like abortion bacilli, although they were somewhat too pale.

The appearance of the bacilli varies a great deal, from small, slim rods to large, plump, irregular rods.

Tuberculosis and abortion infection may be found together, as was observed in several cases.

It is difficult, if at all possible, for a veterinarian to diagnose a case in practice, although clinical examination may show a stiff and solid cornu uteri, a lack of the natural elasticity of the uterine wall and, sometimes, also indications of tuberculous coverings, most often on the surface of the uterus or, upon indications of tuberculosis, in the sheath.

Whether the placenta acts differently with regard to spontaneous loosening than with contagious abortion has not been determined, in that reports range between spontaneous loosening and a condition in which it was impossible to separate it.

The placenta is generally brittle and edematous but that is not necessarily characteristic of tuberculous abortion and in one case the placenta was found to be very tough. One report of characteristic brittleness of the cotyledons—such that they broke easily upon loosening—seems to be an isolated one, and does not appear to be general. In the studies made in our laboratory, even though with the large numbers available for study, we have not been able to find any condition of the placenta with which it is possible to distinguish an afterbirth of a case of contagious abortion from that of one due to tuberculosis.

The only reasonably certain way to settle the question is to dissect the fetus. Following a careful dissection it may be impossible to demonstrate tuberculosis in the fetus. In the majority of cases, however, tuberculous processes will be found in the hilus gland of the liver and in the mediastinal glands and thus offer opportunity for later extreme dissemination and eventual re-infection of itself.

APPEARANCE OF PLACENTA NOT A GUIDE

As has been stated, it is impossible to diagnose the case on the appearance of the placenta, especially in those cases where the placenta resembles that of contagious abortion, also where it is bright red with exudate and fluffy material. There are placentas, however, that have a grayish-red color and which are covered with a rather thin exudate of fine, white fluff, which can first be seen when spread on the slide and which in its entirety seems to have a velvety appearance in that the villi are very indefinite, presumably having disappeared through suppuration. These forms, occurring seldom, are often found to be tuberculous.

In human medicine we speak of abortion—a word which in veterinary medicine is called by the name “casting”—with births occurring before the twenty-eighth week of pregnancy; births that occur later, but before the normal period, are called premature births. This division is based upon the fact that it is considered that a fetus dropped before the twenty-eighth week will not be able to live, while later there is a chance.

The matter is not so definite in the case of the cow in that here various forms of infection play a part. In general the gestation

period of the cow is considered as ranging between 210 to 321 days—commonly 280 days. Before 210 days a fetus is not considered capable of living and therefore every birth occurring before 210 days should be considered an abortion; between 210 and 321 days normal birth is possible and every birth which takes place within such a period without any pathological changes in the afterbirth ought to be called "too early," "normal," or "too late" birth. If, however, in either of the above cases a birth is accompanied with pathological conditions, as edema in the afterbirth and flux, then the birth should be considered an abortion even though the calf was carried the full period or longer.

The period for the tuberculous abortions was not determined for the thirteen cases considered. The remaining 212 cases are divided as follows.

Group I: Includes those cases where the birth occurred too late and also all cases where births occurred at normal time or within a week, too early. There are 25 cases in this group.

Group II: Includes all abortions occurring from one month to a week before full time. There are 118 cases in this group.

Group III: Includes abortions occurring earlier than one month too early. There are 69 cases in this group.

It appears from this study that tuberculous abortions occur rather late, in that 143 of the 212 cows cast their calves during the last month of pregnancy and 25 of these in the last week or normal period.

The results of the postmortem examination of 74 calves showed that in 49 tuberculosis was present at birth. It is of interest to think of the conditions under which the fetus lived before being aborted. Many of the cows were "trading stock" and this no doubt is one reason why the owners, whenever an abortion occurred, were interested in finding out whether it was contagious abortion or not. While these results seem to indicate that tuberculous abortions are most frequent among trade stock, yet one is not justified in drawing the conclusion from this that tuberculous abortions do not also occur among other cattle.

Similarly it is easy to see that among the affected animals are many heifers and young animals.

Following up the cows that have aborted it is found that many of them come in heat within three weeks after the abortion occurred.

Injections from the placenta were made from 136 cases. The material used was scrapings from the placentas (in one case from the uterus) and from the flux when this was the only thing sent

in. The scrapings were placed in a salt solution and without filtering or additions of any sort were injected into the experiment animal.

Following this method, although one cannot know the number of bacilli injected, yet it is safe to conclude that the animal has received a goodly number of organisms when 1 to 2 cc of a heavy mixture are injected.

The experiment animals used were guinea pigs in which the injections were made subcutaneously in the breast. In a few cases, rabbits were also used which were injected intravenously and, in a few of the later cases, intravenous injections were made in tuberculosis-free hens.

RESULTS OF EXPERIMENTS

The results from the 136 injections show that seven of the experiment animals died so soon that nothing can be determined about the injected bacilli. In 124 of the cases the tubercle bacilli present in the experiment animals acted like mammalian tubercle bacilli. In four cases the injection has substantiated the fact that the tubercle bacilli present were of the avian type. In one case the experiment animal, a guinea pig, after injection, acted as though infected with avian tubercle bacilli. The tuberculin test of the cow, however, gave a reaction which was for the bovine type and not for the avian type.

On March 31, 1923, Veterinarian Tauber sent in an afterbirth and with it the following statement:

The cow aborted 4 weeks early, everything points to a case of contagious abortion, but if it is not this I should very much like to know what it is.

The afterbirth had the appearance of a typical case of contagious abortion, but no abortion bacilli were found. On the other hand, staining with the Ziehl-Neelsen method showed a few typical tubercle bacilli and a large number of atypical, vacuolated, long, thick, acid-fast rods, of which some looked as though they were in the process of branching.

These bacilli were then used in injecting a guinea pig (1) subcutaneously, and a rabbit (1) intravenously. Rabbit 1 died on June 5, and showed extreme emaciation. Masses of nodules the size of a millet seed were found on the peritoneum, especially on the omentum. A few were present on the intestines and abdominal wall. There were many miliary nodules on the liver. The spleen was slightly enlarged with cheesy nodules, and likewise the lungs. There were a few scattered nodules in the kid-

neys and quite a few small nodules on the ribs. Plump, swollen, acid-fast rods could be seen in scrapings from the spleen. Definite tubercle bacilli were seen in nodules from the peritoneum. It must be recognized as of special significance that in a rabbit injected intravenously the bacilli were able to attack the peritoneum, as this is unusual. From the guinea pig an injection was made in two rabbits (2a and 2b) and also a guinea pig (2). Guinea pig 1 showed only a doubtful swelling of an inguinal gland.

In the meantime, Tauber reported that the cow had not reacted to the tuberculin test, made July 7, 1922; also that she came from a tuberculosis-free herd and was kept under conditions such as to preclude any possibility of having tuberculosis. She was kept in excellent condition. The aborted calf was her third.

AVIAN TUBERCULOSIS SUSPECTED

After receiving this information, avian tuberculin was sent to Tauber and when the bacilli from the afterbirth showed to be pathologic for rabbit 1 he was advised to investigate conditions at the establishment with regard to avian tuberculosis.

He found that there had been some sickness among the poultry (there had been no lameness, and no changes in the liver had been observed in dressed birds). The owner had, therefore, cleaned out and disposed of the flock and brought in healthy birds. In general, however, conditions were such on the place that it would be difficult to see how the fodder of the cows could be contaminated by the poultry. There had been one case of Johne's disease on the place but that was before this cow was purchased.

On June 27 the cow was examined per rectum. The uterus and glands seemed slightly enlarged. The cow at this time had just been in heat.

A test with avian tuberculin gave the following results:

Temperatures: 38.9° C., 39.0° C., 41.7° C., 41.2° C., 40.9° C. This was a typical reaction. When the owner found out that there was something in the cow which might infect her calves, she was not bred again but was fattened.

Guinea pig 1 now showed a definite swelling of the inguinal gland and also an abscess at the point of injection. The contents of the abscess was examined for acid-fast rods but none were found. The guinea pig died two days later, due to infection

resulting from taking the pus. No culture could be developed from the affected glands.

Rabbit 2b was killed August 22, and upon postmortem showed emaciation, scattered tubercles in the lungs and spleen, a few nodules in the liver, more on the peritoneum, as in rabbit 1, but not nearly so definite as in the first. A culture was prepared from the spleen on solidified horse-serum with 2 per cent glycerin. There was a very slow growth of acid-fast bacilli. On November 7 the culture was reseeded upon pieces of potato boiled in glycerin bouillon, after which growth was very rapid.

Rabbit 2a died September 3, and showed about the same condition as rabbit 2b except that the lesions were more definite, probably because it had been allowed to die of the disease. Four hens (1a-d) were injected intravenously with spleen emulsion from rabbit 2a, in increasing doses, from 0.2 to 1 cc.

Two rabbits (3a and 3b) and a three-fourths-year-old calf were injected with 1 cc and 10 cc respectively of the same material.

Hen 1a was killed on November 24, without showing any sign of tuberculosis.

Hen 1d, which received the largest dose, died December 8 and sectioning showed extreme tuberculosis of the liver, spleen and lungs, but none in the joints or intestines. From her, injections were made in two hens (2a and 2b), both intravenously and subcutaneously. Bacilli from the lesions of the liver of hen 1d looked like ordinary tubercle bacilli.

POSTMORTEM EXAMINATION

The cow was slaughtered and autopsied. She was found to be very fat. One hip gland was swollen and moist on the surface (microscopical examination showed no tuberculous changes); the other was normal. There was no sign of tuberculosis of the liver, spleen, or lungs, nor in the bronchial, mediastinal or portal glands. The mesentery was carefully examined and found sound. The intestines were perfectly normal. Nothing was wrong with the udder and its glands. The uterus was slightly enlarged, and in the left horn were found four nodules (miliary) the size of a pea which, upon dissection, were found to be abscesses filled with thick, yellowish pus. The mucous membrane was normal in the whole uterus. The contents of the abscesses upon examination under the microscope proved to be disinte-

grated cells. No acid-fast rods could be found in the abscessed membrane.

The miliary nodule was cut up and injected intravenously into two rabbits (4a and 4b); also two guinea pigs (3a and 3b).

That there still were living bacilli in the abscesses was shown when rabbits 4a and 4d were killed on February 13. It was found suffering from tuberculosis of the kidney, showing many nodules in the spleen and a few miliary nodules in the liver. In the cultures prepared from the spleen many tubercle bacilli were found.

This showed that the tubercle bacilli had been able to remain alive, although lessened in virulence, under the conditions in the abscesses, from March 31, when the abortion occurred, until the cow was slaughtered, November 6—a total of over seven months.

The cultures on the potatoes from rabbit 2b during a period of three weeks grew rapidly and developed a slimy membrane. Under the microscope this was found to be a pure culture of tubercle bacilli which grew in the manner characteristic of the avian type.

On September 3, the calf was injected first with tuberculin (bovine) and then with tuberculin prepared from avian bacilli. Following are the results:

	<i>Bovine Tuberculin</i>	<i>Avian Tuberculin</i>
10 p. m.	39.4 C.	39.4 C.
7 a. m.	39.4	40.4
8 a. m.	39.0	39.9
11 a. m.	39.3	40.4
1 p. m.	39.4	40.2
3 p. m.	39.6	40.1
5 p. m.	39.8	40.4
9 p. m.	39.4	

This showed no reaction to ordinary tuberculin, but a typical reaction to the avian.

With the intracutaneous reaction with bovine and avian tuberculin, injected one on each side of the throat (the normal thickness of the hide was 7 mm.), the following result was obtained:

	<i>Bovine Tuberculin</i>	<i>Avian Tuberculin</i>
24 hrs.	16 mm.	20 mm.
48 hrs.	17 mm.	25 mm.
72 hrs.	19 mm.	27 mm.
96 hrs.	14 mm.	

This showed a typical reaction for both forms, but a decidedly more definite reaction to the avian form.

With the complement-fixation test, the blood of the calf showed a weak reaction.

The calf was slaughtered December 18 and autopsy failed to indicate the slightest signs of tuberculosis anywhere in the body. This case seems to be definitely one of tuberculous abortion resulting from infection with avian tubercle bacilli. Experimental study and inoculation confirmed this conclusion.

The case is interesting because it shows the possibility of establishing avian tuberculosis in a cow, which is quite unusual, and it is of interest also that the uterus was the only point of attack.

There seems no doubt that this cow could have conceived again, as shown by the postmortem examination, but one is permitted to think also that she would again have aborted and for the same reason as previously.

In regard to the cow's earlier history, it must be supposed that she was infected before she was purchased, as is indicated also by the fact that she freshened in the previous calving fourteen days early. This seems reasonable when it is considered that the bacilli remained alive during a period of seven months in the abscess on the wall of the uterus. The previous abortion, therefore, probably also was caused by these tubercle bacilli.

IMPORTANT INFORMATION OBTAINED

The cow as well as the calf used experimentally in relation to the different tuberculins used and the reactions obtained give important information in regard to the meaning of tuberculin reactions.

The owner of this cow thought he had a tuberculosis-free animal, which he did when considered from the standpoint of the subcutaneous test, and yet this cow upon aborting has spread innumerable numbers of tubercle bacilli in the barn.

The same conditions apply in the case of the experimentally infected calf, in that it did not react to the ordinary tuberculin test, but only to the avian form by the subcutaneous method. No doubt if this method had been applied to the cow a similar reaction would have been secured.

If both animals had been slaughtered as tuberculous, upon autopsy the nodules in the uterus of the cow would hardly have been suspected of being of tuberculous origin, since not a single gland was affected, and when in the case of the calf no patho-

logical lesions of any sort could be found, both cases would (if it had not been otherwise demonstrated as it was) have been considered as an error of the intracutaneous method, which would of course be entirely unfair.

It is apparent from this that the intracutaneous tuberculin reaction is less specific for the various species of tubercle bacilli than the subcutaneous method, and one must say, that, if upon autopsy of a reacting animal no positive evidence of tuberculosis is found, then it is not safe to conclude that the method is a failure.

Maybe it can be said that the intracutaneous method, in bringing forth a reaction when the animal is infected with other acid-fast bacilli (especially paratuberculosis), lacks specificity and when applied and a reaction occurs unexpectedly in a healthy herd the infection may be laid to avian bacilli or paratubercle bacilli and that one can come nearer to the solution of this problem by later applying to such animals bovine tuberculin subcutaneously, in that negative reaction to this test would indicate strongly lack of bovine infection.

These conditions are already well known, but are pointed out here because it represents a case taken out of actual practice and also because any veterinarian will face this same question whenever he changes from the subcutaneous method to the intracutaneous, in any herd which has been found free of reactors for a considerable period of time, when tested by the first-named method.

It is interesting to note in regard to the appearance of the bacilli after first being injected into rabbits that they approach the normal and when again, having passed through a rabbit to a hen, they become entirely normal.

Similar abnormal forms of bacilli can easily be detected in cultures when they become old and begin to dry up. Along the sides can be seen long bacilli beginning to branch, bacilli that still possess their virulence and which, after having a chance to develop in an animal, return again to their normal appearance.

Dr. J. E. Nance, of Oklahoma City, Okla., is the proprietor of the oldest goat farm in Oklahoma, according to a story in a recent issue of the *Daily Oklahoman* of his city. His goat farm is really a full-fledged dairy, supplying goats' milk to customers who gladly pay from 40 to 75 cents a quart for it.

THE NEED FOR COOPERATION*

By C. H. STANGE, Ames, Iowa

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Inasmuch as the veterinary profession is concerned very largely with the animal kingdom and its relation to man, we should have comprehensive knowledge of animals and their products. As a profession we could well give more attention to the larger and more general questions involved in the domestication and production of animals. The interest and knowledge of the veterinarian affects vitally the welfare of the human race, because animals were domesticated primarily for the welfare and happiness of humans. Only those animals that would be immediately useful from an economic and social viewpoint have been brought under domestication and these are the ones with which this paper will deal principally.

From the standpoint of American values, the chief animal products of the world are estimated at 27 billion dollars annually. This is about one-half of the value of all vegetable products produced for all purposes except those fed to animals and is twice the value of all the minerals. The species of animals really important to us are only thirty in number. Of these, sixteen are ungulates or hoofed animals and the only other mammals of any importance to us are the dog, cat and rabbit. There are a number of birds, of course, which must be included, such as the hen, turkey, guinea fowl, duck, goose, swan, pigeon and the ostrich. There are only two insects which are of sufficient importance to us to be considered worthy of domestication, viz., the silkworm and the bee. As has been stated by Professor Elsworth Huntington, of Yale University, all the animals important to us, from the standpoint referred to above, were domesticated so long ago that no records or even traditions have been found indicating when such event took place. As compared with the total number of species, the number worthy of domestication has been extremely small. For example, there are about 3500 species of mammals, but only nineteen have been worth domesticating. Of 13,000 species of birds, only nine are included in our list of domesticated birds and of 3500 species of reptiles and 1400 species of amphibia and 13,000

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species of fish, none have been what we might call domesticated. In the case of insects, we have still a more extreme case, since there are 470,000 species, of which we make practical use of only two. It will be noted that the hoofed animals provide by far the largest group of domesticated animals. This includes six species of cattle and, if sheep and goats are included with this class, one-fourth of the important animals come from this one family. Four of the six members of the camel family have been domesticated and two of the seven members of the horse family.

Some of the principal uses of these domesticated animals are: first, food; second, transportation; third, clothing; fourth, raw materials; fifth, protection and sixth, fertilizer. A few minor uses need not be mentioned here. Food is probably the most important, especially when considered from a financial standpoint. Animals produce about 23 billion dollars worth of food products a year. Transportation products of animals over the world are considered worth about 2 billion dollars and the wool, silk and hides give the clothing materials about the same value. These three are the most important. Professor Huntington considers the importance of animals for transportation more important than that of food. For he says:

Without beasts of burden, human beings might still be carrying all loads on their backs or heads as do the Highland Indians of Guatemala. If animals had not been trained to draw the plow, the great centers of agriculture and civilization might never have migrated into those regions of forest and prairie where the climate is especially stimulating and the highest civilization now centers. Without the draft animals, mankind might never have grasped the wonderful possibilities of the wheel, without which modern machinery might never have developed. Thus in many cases beasts of burden and draft animals have been essential in the highest types of civilization.

This statement of Professor Huntington brings out the old question as to whether or not motor transportation will ever supplant the horse. The horse has been changed in his status to some extent by the motor. Rapid and long-distance transportation is performed by motors of some type or another, but the character of labor required in the production of our national food supply will probably be quite largely performed by horses for many years.

Undoubtedly the greatest development of motor transportation and the utilization of machinery in production of all kinds has been most perfected in the United States. The following information may be of interest in this connection. In the United

States we produce and consume the following products on a percentage basis:

<i>Product</i>	<i>% Produced</i>	<i>% Consumed</i>
Coal	43	43
Iron	54	53
Steel	64	57
Copper	49	44
Petroleum	64	72
Cotton	69	37
Timber	52	51
Shoes	41	39
Automobiles	92	90
Telephones		90

In addition to these figures, it may be interesting to note that 6 per cent of the population of the world has 40 per cent of all the railways and 65 per cent of all telegraph and telephone lines.

This brief summary of conditions in America is sufficient to show that the veterinarian of this country has a very different social and economic problem to which to adjust himself than his professional brethren of other countries.

The general education and standard of living of the public generally and of those engaged in agriculture in America are so much superior, as compared with those of most foreign countries, that it requires a more efficient veterinary service to satisfy the public demand.

The 1,700,000,000 people in other countries depend almost entirely on horses, donkeys, mules, cattle and even camels for their farm work and a large amount of their transportation. As Professor Huntington remarks, if all draft animals including oxen should suddenly be taken away, mankind would be in a much worse state than if all animal food was eliminated, because on the majority of farms, even in the United States, the removal of draft animals would affect the food supply so drastically that prices would sky-rocket and three-fourths of the people of the United States, who live by other means, would be in dire straits. Famine would ensue. The loss of our beasts of burden might produce conditions, even in the United States, very similar to those of China.

A study of the relationship between the population in different countries of the world, both animals and man, is very interesting. There are three points to be considered in this connection: first, the density of human population; second, the density of animal population and third, the number of animals in proportion to the people. Maps of the world indicate that places that have many inhabitants per square mile have many animals per square

mile and few per capita. Regions that have few inhabitants seem to have few animals but more animals in proportion than the more densely populated areas and consequently more animals per capita. England and Wales with 648 people per square mile, Belgium with 634 per square mile and the Netherlands with 528 have a great many animals per square mile, viz., 1070, 1202 and 1438 respectively.

On the whole many animals per capita in America has contributed largely to the generally high standard of living, the energy of its people and its great resources. The progress of the people in any country has been quite largely associated with development of the animal industry of that country. Clothing and food production are so familiar to all that I need not take the time here to discuss them.

The slides which were shown will illustrate some of the points I have mentioned insofar as the United States is concerned. One of the important things I wish to emphasize in this connection is that the industries and all phases of agriculture are dependent one upon another. Briefly, industry needs three things—raw material, labor and a food supply. This food supply naturally must come through agriculture. Great industries are needed because no nation has ever become great and progressive that did not develop its industries. It is a well-known fact that no country that sold its material in a raw state ever became a progressive, strong country. We, therefore, need great industries and in order to have great industries we need a well-developed system of agriculture, including animal industry.

The principal function of the animal husbandman is production. The veterinary profession is a conservation organization for the live stock industry, and for this reason I have attempted to give you a large and general view of the value of animal production for the world as a whole and for the United States in particular. It seems to me that we must have a well-grounded conception of the large duties and responsibilities of our profession if we are to appreciate our full opportunity. This background brings me to the subject of this paper—"The Need of Cooperation"—and in considering this question I chose to consider it not only from the standpoint of the profession itself but also in connection with the social and economic organization of which we are a part.

COOPERATION IN THE PROFESSION

I appreciate that this is a subject that has been discussed many times and one which I believe is impossible to accomplish to the extent most of us would like to see. There is no reason, however, why we cannot agree on some general and fundamental ideas in regard to cooperation. In the first place the question of advertising on the part of individual members or the profession leads to many differences of opinion and even personal feeling. Some recommend a general campaign of advertising for the profession. It is difficult to prophesy just what effect an extensive campaign of paid advertising would have on the profession. The best example I can cite, one which will illustrate this point, and another one which I shall mention later, exist in the medical profession today. I refer to two of the medical cults or branches.

Osteopathy, for example, started not as a medical science, according to the best information I have but as a moral and health code. People began to consult the so-called osteopath in regard to their health and soon they were treating diseases of various kinds. As the osteopathic schools saw the necessity of developing courses in bacteriology and some of the other medical sciences, one faction did not think these additional sciences were necessary and thus were developed two twigs from this branch of the medical profession, viz., osteopathy and chiropractic. One of these has resorted to extensive advertising with apparent temporary success from the standpoint of financial remuneration. This is sometimes referred to by veterinarians as one way to get results. I wish to point out, however, that this method of healing is new, comparatively speaking, and that the sale of most any product can be increased temporarily at least by successful advertising. The results may not be lasting and sometimes are even reactionary. Indications are that the reaction has already set in and that this profession, if it may be so designated, is already losing ground. In this connection I wish to say that I am not comparing the veterinary profession with chiropractic, but I wish to point out that in most other professions, such as law, dentistry and medicine, that kind of advertising does not exist. I do not believe our profession would derive any lasting benefit from it.

Physicians and dentists who resort to those methods usually do not enjoy the confidence of the staple and progressive mem-

bers of their communities. While I know of no method by which we can control such members of our profession as have chiropractic tendencies in advertising, there are some things we can do which are not now being done.

The most potent advertisement the profession has is its own membership. I have never believed that a newspaper article or a paid advertisement would create any lasting impression concerning a man, if he himself could not create the same or a better impression by his presence and services. I believe that a veterinarian's clients are going to advertise him favorably or unfavorably, depending upon his appearances and the character of the service he renders them. We must be judged largely on the basis of general results, because our clients have no technical standard by which to judge us. We should remember that our clients are very much in the same position that we ourselves are when we consult a lawyer. Most of us have no legal standard by which to judge a lawyer's ability. We are influenced by the general results which he secures and by his personality and appearance. I wish to emphasize, therefore, the necessity of encouraging members of the veterinary profession to develop their general qualifications so that the general impression which they make will not only enhance their own standing but increase respect for the profession. This includes, among other things, personal appearance, general education and general methods.

The other illustration which I had in mind, in connection with the osteopath and chiropractor, is the fact that there was a lack of understanding between the medical profession and the public which made it possible for such superficial and inefficient methods to develop. In other words I believe the medical profession failed to do what I have tried to impress upon you in this paper as being necessary in the veterinary profession. This is to study the demands of the entire field of our profession and develop a program comprehensive enough and involving adequate conservation plans. As a result there will be increased confidence and prestige for the veterinary profession. With this idea in mind I wish to suggest also that there should be a cooperative spirit in the veterinary profession sufficient to prevent one veterinarian from making uncomplimentary remarks about his competitor. It should be realized that the public is perfectly aware that the man who is being "knocked" is also

a member of the veterinary profession and to that extent the profession falls in the estimation of the public.

I think one difficulty we have had in the past in connection with cooperation has been the fact that we have tried to control the activities of many members of our profession too much in detail. I think the principles upon which we cooperate should be broad and quite general, because conditions in various communities will vary and there must be allowances made for differences of personality and temperament. There has been too much of a tendency to dictate to the other fellow as to what he should and should not do.

COOPERATION WITH THOSE ENGAGED IN AGRICULTURE

We should cooperate sufficiently with those engaged in the live stock industry to maintain their fullest confidence, for if this is not done and a gap is allowed to develop between the veterinary profession and the animal husbandman, such as I referred to in connection with the medical profession and the public, I am very much afraid that when veterinarians become fewer, which they undoubtedly will do before the schools can supply the demand, we will have quackery developing in our profession very much the same as was the case in the medical profession. I anticipate that the present lay hog-vaccinators will be these quacks.

We have heard much about lack of cooperation on the part of veterinarians and county agents. This has been unfortunate in many ways but I believe there has been a great improvement in the general situation and I believe that much is being accomplished by the Policy Committee of the American Veterinary Medical Association along the lines of promoting cooperation on a large and broad basis. Here again I believe that we could have an understanding that the county agent and other agricultural advisors should interest themselves primarily in the questions of production and marketing and that the veterinary profession would consider and handle the problems of conservation. We could both accomplish more and the live stock industry be benefited as a result. I do not believe that we should be too much distressed by what a few individual county agents may do from time to time. Of course, this cannot be overlooked, but there will always be individuals in every organization who have insufficient creative ability and therefore are unable to develop their own work.

I believe a fine piece of cooperation could be accomplished by a committee of our state veterinary associations and a committee from the state county agents, to be appointed to consider these problems leading to misunderstanding and which now cause irritation. It would at least lead to understanding. I think this committee could also well consider the animal resources of the state and many important phases of the live stock industry. It would enable the association to prepare an outline for constructive work. In this connection it should be remembered that all the eradication and control work in progress, not only from a federal standpoint but from the standpoint of most of the states, is essential for the preservation of the live stock industry and it is therefore very necessary that we have the fullest cooperation, not only between members of the profession but between the profession and the owner of the live stock themselves, in order to accomplish the desired results.

In conclusion I desire to say that I have attempted to point out to you (1) that there is a vital relationship between domesticated animals and man, although the number of animals domesticated is comparatively very small; (2) that even in the United States, where mechanical devices have reached their highest state of development, animals for food production, as beasts of burden and to supply clothing, etc., are more essential than most people realize; (3) that the United States is a country of enormous production but is likewise an even greater consumer of its own product; (4) that our problem of adaptation for the veterinarian is not comparable with foreign countries; (5) that in animal industry there are two quite distinct fields, viz., production and conservation, and that the latter properly belongs to the veterinary profession; (6) that in order to perform our full duty as a conservation organization we should make a survey of the entire field of animal industry and outline a constructive program; and (7) that this can be accomplished only by close cooperation among the members of the profession and of the entire profession with those engaged in animal production.

CANINE PIROPLASMOSIS

In *Agricultura y Zootecnia* for March, 1926, Dr. Francisco Etchegoyhen, of Havana, Cuba, reports a case of piroplasmosis in a dog. Some years ago Dr. George Campuzano, also of Cuba, reported a case of piroplasmosis in a dog, imported to Cuba from the United States.

—N. S. M.

A METHOD OF HANDLING RETAINED FETAL MEMBRANES IN THE COW.*

By CARL F. SCHLOTHAUER

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Retention of fetal membranes in the cow must always be considered a symptom of disease, such as infectious abortion, metritis, cotyledonitis, placentitis, and possibly cervicitis and salpingitis. Therefore, each individual case must be treated according to clinical findings. A careful study of the membranes at the time of removal gives one an excellent opportunity to learn something of the nature and source of the infection as well as the extent of damage done. If the membranes can be removed, they should be spread out on a flat surface and examined macroscopically for lesions. Infections in the gravid uterus arise from four points: from the blood-stream (as *Bacillus abortus*), the non-gravid horn, the cervix, and the apex and tubes. By studying lesions, one can frequently form a rather accurate diagnosis and prognosis. A severe apical or tubal inflammation is always serious, as this part of the uterus is quite inaccessible to treatment. The infecting micro-organism is, of course, of prime importance with regard to the life of the animal. Of these the *Bacillus pyogenes* and streptococci are perhaps the most dangerous.

Complete removal of all the retained membranes is not always possible or advisable. Often stockmen entertain the erroneous idea that the retention of the fetal membranes is a specific disease and, therefore, that a cure cannot be effected unless they have been completely removed. This is a serious handicap to the veterinarian and in such cases the owner must be advised as to the true significance of retained membranes, and that it is not so important to remove the membranes as to know what may be removed. Therefore, if it is impossible to remove the retained membranes at the first visit and, if it seems advisable, permission should be asked to make a second visit. If the owner does not grant this, and care in technic has been exercised, it is quite safe to leave a large portion of the retained membranes in the uterus, simply breaking or cutting off such parts as can be removed without injury, so as to reduce the bulk in the uterus.

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Too much can easily be done in such cases, thereby hindering rather than assisting nature. From two to four uterine capsules should be inserted, or from a pint to a quart of paraffin oil instilled into the uterus, but a douche should not be given, as it is almost impossible to siphon out all of the solution in such cases and any solution left in the uterus causes irritation.

The methods of removing retained membranes are perhaps not of such great importance as the technic. The careful operator who employs the uterine douche, immediately after removal of the membranes, may be as successful as the operator who uses uterine capsules only. I think there is greater danger when douching is practiced, for the uterus may be ruptured and, too, instead of removing débris and infected material, the infection may be spread from a circumscribed area to all parts of the uterus. However, perhaps the greatest cause of failure is from overdouching the recently gravid uterus, which happens when the veterinarian not only tries to remove all of the fetal coverings but also attempts to treat and cure the co-existing metritis all in one operation. The most important thought to keep in mind is not to injure the intact mucous membrane of the uterus. If the bulk of the uterine contents is removed, the uterus tends to involute and discharge the remaining débris almost immediately.

I try to remove retained fetal membranes in from eight to seventy-two hours after parturition, preferably within twenty-four hours. However, if the case is that of a heifer in first pregnancy, who has aborted a three- to six-months fetus, it always is advisable to attempt removal of membranes within twelve hours, because the cervix and uterus contract soon and are easily traumatized when dilatation is attempted. Trauma to the cervix at this time may cause cervicitis, with subsequent hypertrophy and prolapse of the annular folds. If the cow has calved at term, it usually is quite safe to wait until the following day before attempting removal of the membranes. If removal of the membranes is impossible at this time, I insert from two to four uterine capsules and may try again in forty-eight hours, depending on the case. Each time after I have removed as much of the membranes and debris as is advisable, I insert from two to four uterine capsules, breaking them in the uterus and spreading the contents. If the uterus contains much fluid and is atonic, some fluid should be scooped out with the hands before inserting the capsules. The atonic uterus is easily prolapsed and therefore

it sometimes is good practice to administer 5 to 10 cc of pituitary extract intramuscularly, to stimulate involution. Usually no further treatment is advisable at this time. After the cow has passed an estrual period, or thirty days have elapsed, I make a second examination of the genital tract by the rectum and with the vaginal speculum to determine whether more treatment is necessary.

I always wear sterile 20-inch rubber gloves when making uterine explorations or removing retained membranes. This is not so much to protect myself as the cow. All cleaning of the external genitals, tail, buttocks and udder is done bare-handed; the hands are then cleansed and the gloves put on. This minimizes the amount of infection carried into the uterine cavity. The dangerous infections do not so often come from contaminated external genitals as from hands contaminated at other sources. It is quite futile for a veterinarian conducting a general practice to attempt to remove all pyogenic organisms from the hands, especially the finger-tips and nails, which come in direct contact with the only abraded area in the uterus following parturition—the cotyledons. Thus, without gloves, infection would be planted directly into the most fertile field in the entire uterus. If there are two or more cows to be treated at the same stable, one can avoid carrying infection from one animal to another by sterilizing the glove just used or by providing an extra pair.

SUMMARY

Of seventy-six consecutive cases of retained fetal membranes treated by the method described, 46 per cent were associated with abortion. There were no fatalities. Thirty-eight (50 per cent) of the animals required puerperal treatment only, which consisted in partially or completely removing the retained membranes and immediately placing from two to four uterine capsules in the uterus. Nineteen (25.09 per cent) required puerperal treatment and one subsequent treatment, which consisted in douching the uterus with a 1.5 per cent solution of iodin. All of the seventy-six have either conceived since or are capable of conception.

The results in this series of cases indicate that subsequent severe secondary metritis and death can be avoided by employing semi-aseptic methods with conservative treatment.

Lexington! Let's Go!

AS A CLIENT OR THE PUBLIC LOOKS AT OUR PROFESSION*

By A. A. FEIST, St. Paul, Minn.

Usually, at these meetings, we look forward to some interesting case report or some subject pertaining to veterinary medicine or surgery. This time, feeling that we never have looked at ourselves from the outside or as the public or our clients see us, I chose the subject, "As a Client or the Public Looks at Our Profession."

As times have changed, so must we change with them. My subject being small animal practice, I will dwell on the people we deal with—those who own pets—and how they view the profession. I believe that those people, who take the trouble to go to a veterinarian, naturally think a great deal of their pets, their welfare and their custody. They are usually sympathetic people—quite frequently women—and this brings us to the first consideration, namely, our personal appearance. Naturally, this is the first thing our clients will look at. Dress neatly. You may have the seat out of your trousers but, as long as you shave, wear a clean collar and keep your shoes shined, you will pass. There was a time when a veterinarian was called a "horse doctor" and he had to look and smell "horsy" to be a regular "vet," but not any more. People are beginning to look at our profession from a different light. In place of dealing only with horsemen, we are dealing with scientific breeders and business men, who frequently are graduates of various scientific schools. These men are apt to judge a veterinarian according to the impression he makes the first time he is employed.

SELECTING A LOCATION

Next is your place of business. What applies to your personal appearance also applies here. First consider the location. If possible, you should locate on a main street or on a car-line. Secure as prominent a location as the law will allow, particularly for a small-animal hospital. Before buying or leasing, look around and see if any residences are close by. Try to get a location in a business district, preferably between a boiler factory, on one side, and an all-night dance-hall on the other. It is very

*Presented at the twenty-ninth annual meeting of the Minnesota State Veterinary Medical Association, St. Paul, Minn., January 14-15, 1926.

essential to see that the front of your hospital is attractive and always kept neat and clean.

The reception-room: Very few practitioners give this the second thought, but the reception-room is just as important as the operating room. It should be neat, clean and comfortable. It is here that many clients get their first impression. They come in, look around and, if with somebody, start to comment or criticise. The room must be kept free from odors, particularly the strong disinfectants, for often you will hear a client say, "O, what an odor!" It is hard to keep a place free from odors, for the simple reason that all kinds of diseases are brought here—mange, distemper, etc.—and several times a day the floors should be disinfected, and one must naturally use something strong enough to destroy infection. After the room has been disinfected, it may be aired out or some deodorizing agent may be used. Many people dread entering a reception room with a pet and seeing diseased animals all around them. Often, they go away with an increased fear of contagion. This is one of the little things to watch out for. You should warn your clients against letting their animals run around on the floor. If you see a pup of susceptible age, take him into an anteroom or private office. The door between the reception room and the hospital should be kept locked, in order to keep clients or visitors from walking in and also to prevent patients from running out.

The examination-room: This room should adjoin the reception-room. Receive clients one at a time, having the attendant call them in turn. Try to stay out of the reception-room as much as possible. The minute you step in, you have a Chinese party on your hands. Your clients will all start to talk at once, some telling you that they are in a hurry, or that they just want to leave their dogs and that they will be right back. You will lose your prestige and may offend someone by showing individual courtesies. It is better to let some impatient client go and come back later, if he wants to, than to wait on him out of turn.

The equipment of the examination-room should be as handy as possible. It should contain an examination-table, with drain leading into the sink, and two short chains with which to fasten the patient to the wall, to economize time and for your own protection. Nine out of ten owners will hold their pets so gently that the animals will have easy access to your arms and hands. By tieing them you can start immediately, getting the history and taking the temperature. Do not try to examine a small

animal on the floor. The minute you stoop you will frighten the animal, especially if it is nervous or vicious. Have the owner take the head and forequarters, and you take the rear. Place the animal on the examination-table, gently snapping the chains on the collar. If there is no collar, use a bandage. You are now ready to go on with the examination of the case. Here again your appearance must be considered. A white gown has a psychological effect on your client. He feels everything is being done scientifically. Your attendant, when helping in the examination-room, also should be dressed properly and neatly.

The thermometer, as we all know, is the most important diagnostic help we have. Always take the temperature except in cases of chronic skin diseases. The animal may have a moist nose and at the same time have an elevated temperature, which will help you in making a diagnosis. While waiting for the thermometer to register, question the owner as to feeding, quarters, length of illness, etc. Then start your examination of the patient. This procedure finally becomes a force of habit and, as time goes on, you will learn a whole lot from palpation, especially of the abdominal cavity. When your client tells you his dog is constipated, you can easily tell whether or not it is coprostasis by compressing the abdominal walls.

After making your diagnosis and prescribing, the owner's name and address, as well as the animal's history should be recorded. If the animal is to be entered in the hospital, the owner should be required to make a deposit, unless you know him to be reliable. This is one of the most important factors in conducting a small-animal hospital. Here is where you win or lose. A client will come in with an animal almost dead and will want everything possible at that time. He will gladly make a deposit or do anything in his power to try to save his pet. If the animal dies, very often your efforts and the account die with it.

The one great secret in a small-animal hospital is that you should have your wife, or, if not married, a woman present, to take charge of the books and accounts, and also to escort visitors through the hospital. The great drawback in a veterinary hospital is to have someone "hanging around," handling refined and cultured people, especially in the examination-room. Your client is paying for your individual service and does not want some bystander to "listen in" or give his version of the case; comment on his dog or tell him he had a dog just like his and

"Doc" cured him. Your client immediately feels that there is a confederate in his midst, and may think he is "plugging for the house." Such a "hang-around" is usually someone who is not working and is spending his time with you, so that work will not find him. There is nothing more aggravating or embarrassing to a woman client, when she wishes to consult you about castration, or a spaying operation, than to have some ignoramus standing around with his mouth open, waiting to hear what she has to say.

The handling and restraining of animals is a very important point. There are animals that never have been handled. When such an animal, especially, is taken from a sofa-pillow and put into a cage, there is only one thing it knows, and that is how to bark, either because it is scared, lonesome or spoiled. When the owner leaves, the one thought in his mind is what you will do with "Teddy" or "Queen." The client observes your feeling toward the animal before he leaves. The most humane and best remedy is a bandage-muzzle. Do not whip a pet or a nervous animal. The muzzle will accomplish all that is necessary. Draw it up so that he can not bark and he will soon realize that his efforts are useless. Whipping excites the animal and every time you want to take him out of the cage you will have to snare him. There are some dogs, bull terriers for example, that will respond to a whip and still be your friend, but a nervous animal must be handled with kid gloves. This has a great deal to do with treating homesick animals. They must be humored and kept in good spirits in order to respond to your treatment.

OPERATING TABLE FOR UNIVERSITY OF MINNESOTA

Manufactured on the special order of the University of Minnesota Board of Regents, a large-animal operating-table was recently delivered, by William Sellers & Co., of Philadelphia, to the Division of Veterinary Medicine at University Farm, St. Paul. The table is operated by an electric motor and hydraulic pump and is so generous in its proportions that the largest horses and cows can be strapped upon it. Dr. C. P. Fitch, chief of the Division of Veterinary Medicine of the University, says that only a few tables of its kind are in use in this country. It will be used at Minnesota chiefly for operations on large animals and for short-course work with veterinarians and student classes.

VETERINARY ACTIVITIES OF THE IOWA DEPARTMENT OF AGRICULTURE

*By M. G. THORNBURG, Secretary of Agriculture
Des Moines, Iowa*

I appreciate very much the opportunity to discuss the veterinary activities of the Department of Agriculture before this association. You are all aware of the fact that when the Department of Agriculture was created, the duties of the State Veterinarian and the Animal Health Commission were transferred to the Department of Agriculture. This work at the present time is handled by the Animal Industry Division of the Department, with the State Veterinarian as chief of the Division.

During the two and one-half years that the Department has been in existence, both Mr. Cassady, before me, and I had a personal interest in the work, because of our previous close connections with the live stock interests of the State. The Division of Animal Industry is our largest division, in the number of employees and the amount of tax money used, and the largest project under the Division is that of bovine tuberculosis eradication.

The history of tuberculosis eradication in Iowa dates back to July 1, 1919. Before this, of course, there had been more or less testing of cattle by owners who believed that a tuberculous animal was unprofitable from the standpoint of production and who tested their herds at various intervals to eliminate the danger of spreading the disease to other animals.

In 1917, the U. S. Bureau of Animal Industry assigned three tuberculosis inspectors to Iowa, to conduct an educational campaign on the dangers of bovine tuberculosis and to establish tuberculosis-free, accredited herds.

The requests for this work became so numerous that in 1919 the 38th General Assembly of the State of Iowa was asked by the cattle-breeders of the State to appropriate \$100,000 to be used in cooperation with the U. S. Bureau of Animal Industry, for the eradication of tuberculosis and the control of other contagious and infectious diseases, which they did. The bill embodying the \$100,000 appropriation became effective July 1, 1919.

Presented at the thirty-eight annual meeting of the Iowa Veterinary Association, Des Moines, February 2-3-4, 1926.

A campaign was inaugurated and a force of six tuberculosis inspectors was put to work, three by the State and three by the federal government. On June 30, 1920, the results of this campaign showed 49 herds fully accredited, 177 herds which had passed one clean test and 1550 herds under supervision. Due to the increased demand for this work, the money appropriated by the 39th General Assembly was insufficient to meet the demand. The 39th General Assembly consequently increased the appropriation \$150,000, making a total of \$250,000 to be used annually. With this increased appropriation, it was possible to increase the amount of work to such an extent that on January 1, 1923, 1302 herds, representing 35,149 cattle, had passed one clean test.

PURE MILK DEMANDED

The state officials at this time were confronted with a demand, not only from the owners of cattle that their cattle be tuberculin-tested, but from health officials of cities and towns in the State, asking that the dairy cows supplying milk and milk products, used for human consumption in their respective communities, be tuberculin-tested.

Therefore, on account of the widespread demand for tuberculin-testing, the 40th General Assembly passed the county area plan, which provided for county funds to be used in conjunction with state and federal funds. Under the two plans of tuberculosis eradication, by accredited-herd testing and county area work, more effective results have been obtained, which can be illustrated as follows:

In 1923, when this law became effective, twenty-six counties adopted the county area plan and were enrolled. In 1924, nineteen more counties were enrolled. In 1925, seven counties were enrolled, making a total of 52. Fourteen of these counties have been modified, and are receiving the benefits of a modified accredited area. It is hoped within the next few weeks that four more counties will be recommended for modification. Twenty of the remaining counties are on the accredited area basis and eighteen are still testing cattle on the voluntary plan.

During the year, from January 1, 1925, to January 1, 1926, 1,326,832 cattle have been tested in Iowa. Of this number 1,159,241 were tested in counties under the county area plan. This is a greater number than have been tested in any one year in any one state in the Union, and has been accomplished by

state and federal veterinarians, assisted by the local, practicing veterinarians.

The Department appreciates the help and cooperation of the practicing veterinarians, and realizes that the work could not have been carried on, to the extent which it has been, without their assistance and help. No state in the Union has made as much use of local, accredited veterinarians as Iowa. It may be of interest to you to know that, during the year, 230 practicing veterinarians have been employed on the per diem basis. These men have tested 634,230 cattle and have been paid \$122,364.93.

At a recent meeting of the secretaries and directors of agriculture, they were all interested in our method of eradicating tuberculosis in Iowa and the use of local, practicing veterinarians.

TUBERCULOSIS LAW UPHELD

The tuberculosis law in Iowa has been upheld twice by the Supreme Court, which has helped materially in the work and the Department is not anticipating any further trouble from litigation. Briefly speaking, the Supreme Court has held that the statute, so far as it applies to the county area plan, is constitutional; that the legalizing act enacted by the 40th General Assembly validated enrollment of counties, and that the acts of individuals and their statements as to the law were immaterial, and could in no wise invalidate the petition or acts of the officers thereunder.

The general health of the live stock in Iowa during the last year has been good. A number of hog cholera outbreaks have occurred, but thanks to the efficiency of the veterinary profession, they have been taken care of, with but little spread of the disease.

During the year, the use of serum and virus has increased materially. While the Department has no record of the amount of serum shipped interstate, it is safe to say one-third more serum has been used this year, in Iowa, than in 1924. Four permits have been issued to manufacturers and 51 permits to dealers.

Laymen permits to the number of 847 have been issued, which brings the total number to 10,234. This shows that less than 5 per cent of the farmers in Iowa have permits to vaccinate their own hogs. Some of the laymen permit-holders have abused this privilege by violating their permits, but where these cases have been brought to the attention of the Department, they

have been investigated and, in most instances, satisfactorily adjusted. In some cases it has been necessary to make use of the law-enforcing agencies of the county.

The Veterinary Medical Examining Board, consisting of the chief of the Animal Industry Division, Dr. S. H. Johnson, of Carroll, and Dr. John Patterson, of Hedrick, has given two examinations, resulting in fourteen additional certificates to veterinarians to practice in Iowa.

At the request of the secretary of the Iowa Veterinary Association, the following question was submitted to the Attorney General:

Can any person not qualified, under the Iowa laws, to practice veterinary medicine, administer treatments to animals, consisting of drugs which he has sold and for which he has received a commission? In other words, does the taking of a commission constitute a fee for services, if the person administers the product sold?

In reply, the following opinion was given:

If peddlers or vendors plying their trade in this state sell patent medicines or drugs, which are represented to cure certain animal ailments and diseases, and administer them to the animals, we believe that the question is purely one of fact. If the person is, in fact, receiving compensation for administering the drug or treatment, even though the charge purports to be only for the drug or medicine administered, then he would be engaged in the practise of veterinary medicine. If, however, the facts show that he does not receive any compensation for the treatment, but is, in fact, treating the diseased or injured animal gratuitously, then he would not be engaged in the practice of veterinary medicine, and no license would be required. The facts in each particular case would control and must be determined before it can be definitely ascertained whether or not the person is, in fact, engaged in the practice of veterinary medicine.

During the year, the Department, in conjunction with the Attorney General's office and the president of your association, has held a number of conferences on methods to pursue in dealing with so-called veterinarians practicing without licenses. As a result, two prosecutions are now being made. I am sure this will work out satisfactorily with the veterinary profession in Iowa.

You all realize the decrease in the horse population. It was only a few years ago that a large percentage of your practice in Iowa was devoted to the treatment of horses. The Stallion Registration Department, under the direction of Carl Kennedy, Assistant Secretary of Agriculture, shows that registration of stallions reached its peak in 1914 and 1915. This has gradually decreased, until at the present time we have only 27.3 per cent as many stallions and jacks in Iowa as at that time. The stallion-owner states that he must travel his stallion or work him to get a profit out of the business.

In a questionnaire sent out to 300 stallion-owners, we found that 15 per cent more mares were bred in 1925 than in 1924, which indicates an increased interest in the horse business. While there is this increased interest I think we should be very careful not to overdo it, as the demand is for horses of a certain type, and unless they conform to these qualifications, they prove a drug upon the market. It is the heavy draft horse, with quality and action, that brings the price at the present time.

You men, who are in constant contact with the farmers of the State, can be of great assistance to them in their breeding operations. Few farmers study mating of animals, and usually breed their mares to the nearest stallion.

The Department appreciates very much the help and assistance the veterinarians have given in administering the stallion registration law. We believe this law has been of benefit to the horse industry of Iowa. It has helped eliminate grade stallions; also the animal with a bogus pedigree and has educated the farmer, to a certain extent, to breed better horses.

The stallion-owner should be advised that the stallion lien law applies only to horses that have certificates. This fact alone should be of enough benefit to the stallion-owner, so he will have his stallion registered.

BUREAU TRANSFERS

Dr. Paul Vaughn (O. S. U. '11), from Birmingham, Ala., to Albany, N. Y., on tuberculosis eradication.

Dr. Robt. H. Hammer (A. P. I. '19), from Atlanta, Ga., to Birmingham, Ala., on tick eradication.

Dr. Chas. H. Ellis, Jr., from New York, N. Y., to Atlanta, Ga., on hog cholera control and tuberculosis eradication.

Dr. H. S. Thompson (McK. '10), from South St. Paul, Minn., to Austin, Minn., on meat inspection.

Dr. John A. Carlsen, from South St. Paul, Minn., to Austin, Minn., on meat inspection.

Dr. B. E. Harper (Nat. V. C. '96), from Omaha, Nebr., to Ottumwa, Iowa, on meat inspection.

Dr. W. L. Williamson (O. S. U. '15), from Ottumwa, Iowa, to Omaha, Nebr., on meat inspection.

Dr. Merwin L. Crans (K. C. V. C. '16), from National Stock Yards, Ill., to Toledo, Ohio, on meat inspection.

Dr. Elwin J. Creely (San. Fran. '14), from Portland, Ore., to Sacramento, Calif., on tuberculosis eradication.

Dr. B. O. Sherrill (Ind. '08), from Indianapolis, Ind., to Milwaukee, Wis., on meat inspection.

Dr. James A. Whealy (St. Jos. '15), from Tacoma, Wash., to Sioux Falls, S. D., on meat inspection.

Dr. Chas. H. Leavitt (Chi. '09), from foot-and-mouth disease control to meat inspection, Houston, Texas.

VACCINATION OF POULTRY*

By S. H. McNUTT

*Department of Veterinary Investigation, Iowa State College,
Ames, Iowa*

There is a great difference of opinion as to the value of vaccination of poultry for various diseases. Such reports as one finds fortunately deal with vaccination for one particular disease, or in other words, mixed bacterins have not been used in experiments.

Mack and Records,¹ of Nevada, (1916) reported good results in chicken cholera following treatment of the affected flocks, in which they used killed cultures of *Pasteurella aviseptica*, although more than one injection was sometimes necessary.

Gallagher² (1917) concluded that fowl cholera bacterins were of no value.

Beach,^{3,4} of California, (1918-19) reported unsatisfactory results following the use of cholera bacterins in turkeys. Later, the same author reported that killed cultures of the fowl cholera organism were useless in the control of cholera in chickens. Mortality was higher in his vaccinated chickens than in the controls.

Van Es and Martin,⁵ of Nebraska, (1920) reported negative results in fowl cholera vaccination, using commercial products. Later (1925),⁶ these authors again make the same report.

Murray and Willey,⁷ of this department, in vaccinating flocks affected with cholera, noted that in some flocks the birds stopped dying and in other flocks the death-rate continued high. They concluded that the disease ran its course through a flock and was in no way affected by the injection of killed, fowl-cholera organisms.

The Kansas Experiment Station, after vaccinating several thousand chickens, states that vaccination has been satisfactory both for cholera and roup.

Van Es and Martin,⁶ of Nebraska, (1925) report that there is no vaccine or serum yet prepared that is of value in roup.

Kaupp,⁸ of North Carolina, (1922) uses bacterin for fowl typhoid with reported good results. The Kansas Experiment

*Presented at the thirty-eighth annual meeting of the Iowa Veterinary Association, Des Moines, Iowa, February 2-3-4, 1926.

Station also reports good results with this treatment in fowl typhoid.

Hadley,⁹ of Wisconsin, (1914) found that vaccination was of considerable value in the control of pox and canker. He was among the first in this country to use a vaccine made from the lesions of affected chickens.

Giltner¹⁰ (1914) reported that of twelve chickens affected with pox eleven recovered following vaccination.

Beach,^{11,12} of California, (1915) advocated the use of pox vaccine. Of the vaccinated birds only 9 per cent developed pox or canker, whereas 87 per cent of untreated birds developed the disease. Later (1920), Beach stated that "vaccination has proved a very effective means of promptly checking outbreaks." He found that the length of immunity was from two months to two years.

Mack and Records,^{13,14} of Nevada, (1915) report that vaccination promptly checked pox and exercised a marked curative effect. Again, in 1916, these authors state that immunity is of short duration and suggest a careful study of bacteria that may be associated with pox.

Van Es and Martin,⁶ of Nebraska, (1925) advise the use of pox vaccine in an experimental way.

In the fall of 1924, twenty flocks, representing 759 birds, were turned over to us to vaccinate in any way we saw fit. Commercial mixed bacterins were employed. In all there were six different bacterins from six producers. These were the common mixed bacterins recommended for cholera, colds, roup, canker and pox, purchased in the open market. In each flock only one bacterin was used and only one-half of the birds were treated, leaving the other one-half as checks or controls. The flocks were not exposed to any disease and were healthy at the time, but since considerable disease had always been present on these premises, during the winter, it was thought that the same might occur after vaccination.

Three bacterins (1, 2 and 3) were used in flocks representing 223 chickens, where no disease broke out following treatment and for that reason the results are of no value in determining the protective value of these bacterins. But they do show, that had all chickens been vaccinated, the owner might have claimed that the non-appearance of disease was due to vaccination, since disease had always been present in these flocks in the past several years.

The other three bacterins (4, 5 and 6) were used in flocks representing 537 chickens, where one or more diseases made their appearance and in every case the disease was one against which the bacterin should have protected, as per claims made for it by the manufacturer. Rapid spread of the disease and high mortality were prevented by the application of sanitary measures.

Table I shows the results obtained following treatment with mixed bacterins.

TABLE I—*Results following treatment of chickens with mixed bacterins*

NUMBER OF BACTERIN	TREATED				UNTREATED				RESULTS	
	NUM- BER	LOSSES			NUM- BER	LOSSES				
		INFECTIOUS DISEASES*	%	OTHER CAUSES		INFECTIOUS DISEASES*	%	OTHER CAUSES		
1	25	0	0.0	1	24	0	0.0	1	None	
2	24	0	0.0	3	25	0	0.0	0	None	
3	63	0	0.0	0	62	0	0.0	3	None	
4	121	4	3.3	2	119	0	0.0	1	Negative	
5	31	1	3.2	2	31	1	3.2	1	Negative	
6	119	4	3.4	5	116	0	0.0	1	Negative	
Totals	383	9	2.3	13	377	1	0.26	7		

*Refers to any disease against which the bacterin was claimed to immunize.

In every case the death-loss among the treated equaled or exceeded the loss among the untreated. Usually the loss was greater among the treated.

In chicken-pox-virus vaccination various flocks, representing 394 chickens, were used. One hundred ninety-two of these were given a single injection of pox vaccine and 202 hens, kept in the same house, were used as controls.

Table II shows the results of this treatment. Pox and canker were as prevalent among the treated as among those not treated; only one bird more per hundred was lost out of the untreated portion of flocks represented in this experiment.

TABLE II—*Results of vaccination with chicken-pox virus vaccine*

NUMBER	TREATED			UNTREATED			RESULTS	
	LOSSES			NUMBER	LOSSES			
	POX OR CANKER	%	OTHER CAUSES		POX OR CANKER	%		
192	3	1.5	31	202	5	2.5	23	

Following treatment, three birds were lost out of the treated group and five birds were lost out of the untreated portion. This gives a loss of 1.5 per cent in the treated, as compared with

a loss of 2.4 per cent in the untreated. Pox and canker were as prevalent among the treated as the untreated and the former showed a higher loss from diseases and other causes. If the vaccine produced any immunity, only one bird out of each hundred was saved.

Hemorrhagic septicemia aggressin was tested as an immunizing agent against fowl cholera, 52 chickens being employed in this experiment. In the test two flocks of chickens, maintained under identical conditions of housing, feeding and care, were used. The check flock consisted of 20 birds of mixed breeds, including Rhode Island Reds, White Leghorns and Barred Rocks. Beginning February 18, 1925, this flock, without previous treatment, was fed four liters of broth culture of *Pasteurella aviseptica* and the internal organs of twelve chickens dead of cholera. The feeding was prolonged over a period of five days, or until February 23. The following mortality occurred:

February 21—2 dead. Diagnosis, cholera

"	22—3	"	"	"
"	23—1	"	"	"
"	24—1	"	"	"
"	26—1	"	"	"
"	27—1	"	"	"

These nine deaths represent a mortality of 45 per cent of the check flock. No further deaths occurred up to March 10, the remaining birds being in apparent good health.

The second flock consisted of 32 Rhode Island Reds. They were given the recommended dose (1 cc) of hemorrhagic septicemia aggressin, February 9, 1925. No death occurred following this treatment and, on the seventeenth day after injection, February 26, they were fed 1½ liters of broth culture of *Pasteurella aviseptica*. The following mortality occurred:

February 27—1 dead. Diagnosis, cholera

"	28—5	"	"	"
March	1—4	"	"	"
"	2—2	"	"	"
"	3—2	"	"	"

On the third of March they were given a second injection of aggressin, following which additional deaths occurred as follows:

March 5—1 dead. Diagnosis, cholera

"	6—1	"	"	"
"	9—1	"	"	"

These 17 deaths represent a mortality of 53 per cent in 11 days, as against 45 per cent, in the untreated flock, in 19 days. The untreated flock received nearly 3 times the quantity of culture received by the treated flock and in addition the internal organs of 12 fowls dead of cholera.

Fowl typhoid vaccination experiments have not been carried far enough to warrant conclusions. In one flock where fowl typhoid was causing much trouble, it was reported that all check chickens promptly died and the loss was stopped in the vaccinated portion. This flock, however, was not under direct supervision and for that reason reports are not to be depended upon. In another flock of 400, where fowl typhoid existed, there was no loss following vaccination in either treated or untreated chickens until after three months, when a limited number died out of both portions of the flock. It would seem that if any protection was afforded it was of short duration. The product used in the above flocks was a killed broth culture of the *Bacterium sanguinarium*. Ordinary broth was inoculated and incubated 48 to 72 hours, one-half of one per cent phenol was then added and, after standing a number of hours, it was ready for use. Injection of one cubic centimeter was made subcutaneously. Twenty-four slant-agar cultures, from which the organism was washed and killed with heat, did not check typhoid in another flock of 325 chickens. Injection of killed cultures of the fowl typhoid organisms has not protected against injection of living virulent organisms, but did keep vaccinated chickens alive two days longer than controls, on an average. Shortly after treating the infected flocks, there is apt to be a rather sharp increase in mortality, so much so, in fact, that one will often suspect that the bacterin is not sterile. Evidently this loss represents those birds that are sick at the time of vaccination. Following the injection of fowl typhoid bacterins, agglutinins appear in the blood within a few days and disappear again in 30 to 60 days.

SUMMARY

In a number of flocks of chickens, consisting of 670 individuals, one-half of each flock was injected with commercial, mixed-infection bacterins, recommended for the prevention and treatment of cholera and secondary infections of chickens, including canker, pox, roup, etc. In every flock the losses of treated birds equaled or exceeded the losses of the untreated.

In another series of flocks, consisting of 394 birds, a similar experiment was carried out, using pox-virus vaccine. An outbreak of pox and canker occurred and the disease was as prevalent among treated as among untreated birds. The death loss was greater in the untreated flocks but the difference was slight—one bird more per hundred of those used.

Hemorrhagic septicemia aggressin, injected into healthy fowls, furnished no increased protection against virulent cultures of the organism of fowl cholera, as compared with fowls not injected; in fact the resistance may have been lowered, since 53 per cent of the treated birds died, as compared with 45 per cent of the untreated.

Fowl typhoid bacterins, used in flocks aggregating 725 birds, failed to show any effect sufficient to recommend its use.

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In the Heart of the Blue Grass August 17-18-19-20, 1926

IMPORTANT CASE WON

The U. S. Department of Agriculture won a decision over the Bowman Remedy Company, of Minnesota, in the legal battle fought in Cleveland the early part of May. The suit was the culmination of investigations conducted by the Bureau of Chemistry of the U. S. Department of Agriculture and the District Attorney of Cleveland. The trial was held before Federal Judge Paul Jones and came to an abrupt end when the defendant failed to produce testimonial witnesses. The government was backed up by an imposing array of expert veterinary talent, called to Cleveland to give expert testimony. The result of the suit is to exclude the notorious bran-and-brown-sugar abortion nostrum from interstate commerce.

PRESENT KNOWLEDGE CONCERNING THE CAUSE OF CANINE DISTEMPER*

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Definite judgment as to the cause of canine distemper is more difficult of formation now than at any other time in the last two decades if one may make this deduction from the inquiries and comments of those who are familiar with the work that has been, and is being, done in this and analogous diseases. Previous to 1910 there was a rather composed uncertainty with regard to the question, which was divided about equally between those who held, not without reason, the theory that an ultravisible virus was the cause and those who believed that the disease was of bacterial origin. The association with the disease of such bacteria as streptococci, staphylococci and colon bacilli and some other organisms was generally admitted and their secondary significance recognized.

The conviction of Ferry, published in 1910 and later,^{2,3,4,5,6} that *Bacillus bronchisepticus* was the primary agent came as somewhat of a relief as well as a notable and encouraging achievement. Although the results of Ferry's work were not immediately, nor in fact ever, universally accepted, they received timely confirmation by investigators in different parts of the world, especially by M'Gowan in England, and by Torrey and Rahe in this country. The situation was thus clarified to an extent and, in this country at least, resolved into a general acceptance of the primary significance of *Bacillus bronchisepticus*, the final test being in the hands of the practitioner.

Recent confusion as to the actual status of our knowledge of the cause of canine distemper can be attributed to four things: (1) lack of consistent and convincing results following the use of immunizing and curative agents based on *Bacillus bronchisepticus*; (2) the negative results obtained in the last few years by some investigators who have sought, along with other studies of distemper, to assess the significance of that organism; (3) the results of work reported by the British Field Distemper Council, and (4) work that has been reported on the cause of distemper in

*Presented at the seventh annual Conference for Veterinarians, University of Illinois, Urbana, February 16-17, 1926.

foxes, together with similar findings in cases of distemper in dogs.

APPARENTLY SECONDARY QUALITIES OF *BACILLUS BRONCHISEPTICUS*

The results of studies of distemper made during the last fifteen years show that most investigators have designated *Bacillus bronchisepticus* as the commonly isolated organism. Ferry reported its isolation in a majority of his cases; M'Gowan in 93 per cent of his cases; Torrey and Rahe in 81 per cent, and I, in 66 per cent.

On the other hand, the British Commission reports strikingly different results. In the first series of cases which they examined, *Bacillus bronchisepticus* was obtained from the tracheal mucous membrane of but two of twenty-three animals and from the lungs of only three of the seventeen which showed bronchopneumonia. These are the lowest figures reported for the isolation of this organism in cases of natural distemper; they do not definitely deny the bacterial theory of distemper, but similar results on a large scale might at least eliminate *Bacillus bronchisepticus* from further consideration as a prime agent in the disease.

Meanwhile the bulk of evidence demonstrates the widespread occurrence of this organism in different parts of the world. In fact, I know of no single or localized outbreak of canine distemper that has been studied in which the entire absence of *Bacillus bronchisepticus* has been noted. If its absence were proved, it would establish *per se* that it is not the primary factor, and indeed such an outbreak is not unlikely to occur. The fact that an organism is found in a large percentage of cases is no absolute proof that it has any causal relationship to a disease, for it has long been recognized that a particular bacillus may be a regular, although secondary or accidental, complication of a specific fever. Witness of this is had in the occurrence of *Bacillus suispestifer* and of *Bacillus suisepsticus* in hog cholera.

Contrary to the concept, then, by which *Bacillus bronchisepticus* was, for several years, generally considered the primary cause of distemper, there now exists much evidence that it participates only in a secondary manner. This evidence is derived from two sources. First, veterinarians who have employed bacterins and vaccines made from the recognizable bacilli have not found these products to be dependable in protecting dogs

against attacks of the disease, nor have they found the homologous antiserums to be specific in curing diseased animals. It is not asserted that these products have no value whatever; on the contrary, when employed in selected cases they probably exert a beneficial action for, in spite of its secondary role, *Bacillus bronchisepticus* still must be considered pathogenic to a degree and as having its share in the development of the organic affections that arise in the course of the disease.

The second source of evidence is the fact that certain investigators have found it impossible to reproduce the complete clinical picture of canine distemper, in susceptible animals, with cultures of *Bacillus bronchisepticus*. The transmission of the disease can be much more readily and definitely effected by contact than by varied inoculations of this organism. In an earlier paper,⁹ I pointed out that dogs which have developed some of the symptoms of distemper following the administration of living cultures of *Bacillus bronchisepticus*, and recovered, still remain susceptible to virulent infection by natural means. Such reaction is not in accord with the specific immunity which undoubtedly accompanies recovery from one attack of true distemper.

In speaking of the complete clinical picture of distemper a moot question is raised, because its varied manifestations render a typical case difficult to follow as a guide in reproducing the condition. Yet it must be urged that the majority of cases are typical, in the sense that they display a characteristic combination of symptoms and lesions. One or even more of the common signs of distemper may be displayed by animals suffering from other ailments, but it is the minority of cases that are atypical and require exhaustive differential diagnosis. There is no sound basis for the denial that canine distemper in its varied forms is a distinct clinical entity; the proponents of such a theory presumably have in mind the manifestations and effects of the disease rather than the underlying factors. Such a theory likewise disregards the fact that immunity to all forms of the disease is acquired by recovery from one attack of true distemper of whatever form.

The finding of inflammatory changes in the central nervous system in a series of cases as reported by Roman and Lapp^{13, 14} is noteworthy and may add one more detail to establish the entity of the disease, although it has no direct bearing on its cause. Lesions of the central nervous system in canine distem-

per have been noted before. In 1908, Batten and Holmes described meningoencephalitis associated with chorea of dogs. Lewy, Kantorowicz and Frankel^{10, 11} described the histologic features of the nervous form of distemper and drew attention to the occurrence of groups of small bodies in the brain and cord which they regarded as parasites and to which they attributed the morbid condition. The lesions noted by Roman and Lapp are of somewhat different nature and consisted chiefly of a lymphocytic infiltration about the small vessels and, in certain places, about the altered large motor cells. Such changes were observed in the central nervous system in nineteen of twenty-nine cases of distemper, and the authors suggest that a thorough search would reveal the lesions, which they consider typical, in the brain and cord in all cases of distemper.

WORK OF THE RESEARCH COMMITTEE OF THE BRITISH FIELD DISTEMPER COUNCIL

The work being done in England in the special quarters provided at Mill Hill in Middlesex is quite well known and represents the most mature effort so far undertaken to learn the cause of canine distemper. Technical reports of the Research Committee have not been available, but the general, though fragmentary, reports rendered by the Council have contained some interesting observations. These have received mention in the veterinary literature from time to time and it is only necessary to call attention to some of the more outstanding developments.

These investigators have succeeded in raising a considerable number of young dogs in quarantine free from exposure to natural distemper, a fact which is invaluable when the results of subsequent artificial infection are considered. Obviously, any study undertaken to reproduce distemper must meet this requirement; otherwise unforeseen sources of infection would render the results of inoculation open to question.

Results in attempting to isolate *Bacillus bronchisepticus* from dogs with natural distemper have already been referred to and have inevitably led the committee to the opinion that this organism is not to be seriously considered as a primary agent. Their further opinion that the infective agent may be an organism that is filtrable at certain times and not filtrable at others is significant, in that it suggests the possible association of two agents instead of one.

**STUDIES ON THE CAUSE OF DISTEMPER IN FOXES
WITH REFERENCE TO SIMILAR STUDIES ON DOGS**

In May, 1925, Green reported a study that he was carrying on with regard to distemper in foxes. An organism believed to be of the genus *Salmonella* was isolated and found to be capable of reproducing a disease known as fox distemper in passages through several series of animals. Because of the apparent similarity of the disease to canine distemper Green was prompted to look for a similar organism in the latter disease, and in a communication to *Science*⁷ he announced the finding of an organism, also of the genus *Salmonella*, in dogs. Moreover, this organism was said to be capable of reproducing the clinical picture of canine distemper in dogs and consequently it was believed that "the organism isolated is of great importance as a primary cause of infectious disease in dogs which is usually described as distemper."

Judgment of the correctness of this belief must await publication of complete scientific reports on the work. Three principal objections to the acceptance of the statement are permissible on the information so far available. (1) There is no sound basis, aside from the clinical aspect, for classifying distemper of dogs with distemper of foxes, as comparatively little accurate data or information concerning the latter disease is at hand; (2) the organism reported belongs to a group, members of which are exceedingly widespread in nature and easy of cultivation and, therefore, if present in large numbers in cases of canine distemper, should have been noted in the exhaustive work done heretofore, and (3) the lesions (inflammation of stomach and bladder, enlargement of liver and spleen, marked ulceration of the gastro-intestinal tract with intense hemorrhage and perforation) produced in foxes by the fox organism differ very greatly from those that are most common in canine distemper, and any definite relationship between the two disease is consequently difficult to recognize.

SUMMARY

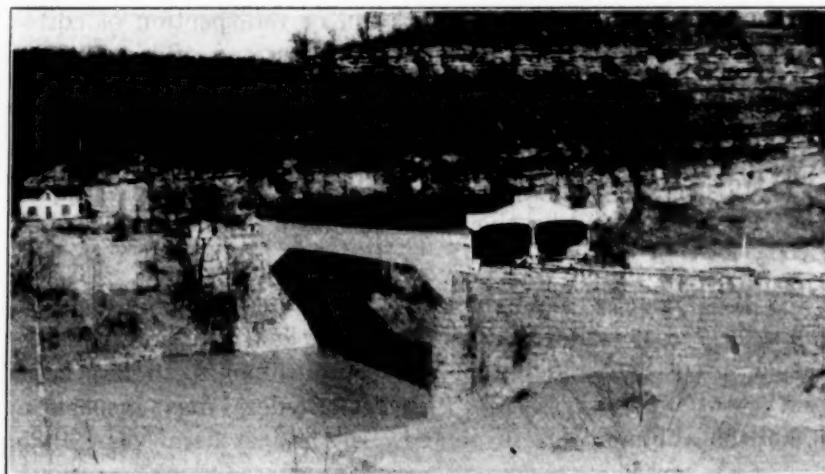
There is at present a divergence of opinion concerning the cause of canine distemper, which must await the results of investigations now being carried on before any more satisfactory judgment can be formed. Any attempt to determine the primary cause and reproduce the disease must take into account its complete clinical and pathologic picture until there is proof that it

does constitute more than one disease entity. The fact that recovery from one attack of true distemper of any form confers immunity to other forms would seem to negate the theory of more than one disease entity. If efforts to reproduce the complete clinical and pathologic picture of canine distemper with a purified virus fail, the actual role played by secondary pathogenic invaders must be ascertained, and the identity of these subordinate factors established.

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ON THE WAY TO LEXINGTON



Bridge over Kentucky River at Camp Nelson. Oldest and longest wooden span extant. 83 years old. Double drive.

THE PRINCIPAL CAUSES OF CONDEMNATION OF MEATS*

By A. L. HIRLEMAN, Atlanta, Ga.

*Inspector-in-Charge, Tuberculosis Eradication in Georgia
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The expansion in our live stock industry, the fact that contagious and infectious diseases were prevalent in certain sections, reports of health departments of some of the larger cities to the effect that their meat supply was unwholesome, and demands of foreign countries that the United States Government certify to the healthfulness of American animals and meats, led Congress to pass the first legislation providing for federal meat inspection. This was in August, 1890. The Act provided for the inspection of salt pork and bacon intended for export to a foreign country requiring such inspection, or when the exporter requested it. This inspection of cured meat did not accomplish the more important object of determining whether or not the animals, from which the cured meats came, were free from disease at the time of slaughter. The weak points of this law soon became apparent, and successive acts were passed by Congress, in March, 1891, and March, 1895, strengthening the meat inspection laws.

Meat inspection, primarily, should be a service in hygiene and sanitation. The authority conferred by the above laws was not sufficiently broad to control sanitary conditions, or to provide for the supervision of the preparation or reinspection of edible products in establishments having inspections. This lack of authority was remedied by Congress, on June 30, 1906, by passage of the Meat Inspection Act, which, in a few years, gave the United States the most comprehensive and dependable system of meat inspection in the world. That meat inspection is appreciated and approved by the public is shown in its steady growth to its present magnitude.

In 1894, federal meat inspection was conducted at forty-six abattoirs, in seventeen cities. In the last fiscal year, 1925, inspection was conducted in 910 establishments, in 257 cities and towns. In 1892, the first full year of federal meat inspection, 3,809,459 animals were inspected. In the last fiscal year, 1925,

*Presented at the ninth annual meeting of the Association of Drug and Food Officials of the Southeastern States, Valdosta, Ga., March 17-18-19, 1926.

75,660,445 animals (excluding horses) were given antemortem and postmortem inspection.

Antemortem inspections and causes of condemnation of each class of animals for the last fiscal year are shown in tables I, II, III and IV.

"Suspect" is a term used to designate animals suspected of being affected with any disease or condition that may cause condemnation, in whole or in part, on special, postmortem examination.

TABLE I—*Antemortem inspection of animals for fiscal year ended June 30, 1925*

CLASS	INSPECTED	SUSPECTED	CONDEMNED
Cattle	9,773,992	236,378	18
Calves	5,173,815	5,384	34
Sheep	12,205,358	2,542	6
Goats	26,572	5	0
Swine	48,720,659	73,835	1,337

TABLE II—*Diseases and condition for which animals were condemned on antemortem examination*

CAUSE	CATTLE	CALVES	SHEEP	SWINE
Abscess				34
Congestion				59
Emaciation			1	38
Hog cholera				581
Immaturity		24		
Injuries				6
Metritis	1			
Moribund	3			3
Phlebitis		1		
Pneumonia	1	2	2	26
Pyemia			1	1
Pyrexia	8	6	2	587
Septicemia	5			
Swine plague				1
Tetanus		1		1

The figures given include only the animals and parts condemned on antemortem and postmortem inspection. Supervision of the handling and reinspection of meat and meat-food products is made at all establishments, having federal inspection, during the processes of curing and up to the time the product is marketed. Meat and meat food-products, condemned during the fiscal year 1925, on reinspection, on account of having become sour, tainted, unclean, rancid, or otherwise unwholesome, are given in table VII.

It might be well to explain what we mean when we say a carcass or part is condemned. In this instance, condemnation means unfit for human consumption and on federal meat inspection every precaution is taken to see that there is no possible chance of such products being used for anything edible. When a carcass or part is condemned it loses its food value, its only value then being its tankage value. In brief, this is the procedure in an establishment having federal meat inspection.

TABLE III—*Postmortem inspection of animals for fiscal year ended June 30, 1925*

CLASS	INSPECTED	CONDEMNED
Cattle	9,773,883	92,055
Calves	5,185,316	11,088
Sheep	12,203,159	12,701
Goats	26,570	114
Swine	48,459,608	180,427

At the beginning of the day's operations, the lower openings of the offal tank, that is to receive the condemnations for the day, is sealed by a government employe. This employe follows every truck-load of condemned product and sees that it really goes into this tank. Enough intestinal content or other denaturing matter is put in each tank to insure the contents being rendered entirely unfit for edible purposes. When the day's work is completed, or the tank is full, the upper openings are sealed with a government seal, and a sufficient force of steam, not less than forty pounds, is turned into the tank and maintained until the contents are effectually destroyed for food purposes. The seals are then broken by a government employe. Samples of the grease are taken occasionally to determine whether it is effectually denatured.

It will be noted from the figures on causes for condemnations that tuberculosis continues to be the most widespread malady

TABLE IV—*Diseases and conditions for which condemnations were made, in whole or in part, on postmortem examination*

CAUSE	CATTLE		CALVES		SHEEP		SWINE	
	CAR-CASSES	PARTS	CAR-CASSES	PARTS	CAR-CASSES	PARTS	CAR-CASSES	PARTS
Actinomycosis	1,097	97,337		17	1,770		3	2 6
Anthrax								8
Asphyxia	6			6		15		1,260
Blackleg	8			11				
Bone disease	141	31	94	24	227	160	8,012	36
Caseous lymphadenitis						1,165	10	
Cellulitis				2	1			32 229
Congestion	5	55	9	1	7			38 7
Contamination	9	2,662	5	15	1	2	1,222	4,268
Cysticercus	185	585	31	3	200		103	1
Dropsical disease	12			1		4		2
Emaciation	7,010		2,059		3,040		1,169	
Frozen								1
Gangrene	75		40		3			8
Hog cholera							19,001	
Hydronephrosis						1		42 1
Icterus	104		152		1,329		4,397	
Immaturity			3,629					
Injuries, bruises, etc.	6,666	454	1,048	118	678	181	1,277	5,314
Leukemia	559		28		8			194
Melanosis	31	8	92	7	21		101	3
Moribund	21		3		46			109
Necrobacillosis	4		1		2	1		1
Necrosis	2	1,377						3
Parasitic	14	51		1	9			57
Phlebitis			63					
Pneumonia, etc. ¹	8,663		1,964		1,738		26,211	
Pregnancy ²	127				19			42
Septicemia, etc. ³	4,595		980		1,047		23,841	
Sexual odor	3				1			3,535
Skin diseases			4					100
Swine plague								12
Texas fever	54		100					
Tuberculosis	61,104	84,027	708	571			86,282	939,294
Tumors and abscesses	1,560	2,994	41	326	140	39	3,366	152,146

¹Peritonitis, enteritis, metritis and pleurisy included in these figures.²Animals showing evidence of recent parturition included.³Pyemia and uremia included.

in both hogs and cattle, it being responsible for more condemnations than all other diseases and ailments combined. These figures would seem to emphasize the necessity for at least continuing, if not increasing, the present campaign against tuberculosis.

TABLE V—*Grand total condemned on antemortem and postmortem examination*

CLASS	CARCASSES	PARTS
Cattle	92,073	189,581
Calves	11,122	2,837
Sheep	12,707	396
Swine	181,764	1,101,806

In the larger packing-houses, where, during the busy season, from 1000 to 2000 cattle and 5000 to 10,000 hogs constitute the day's slaughter, one can readily understand that the killing-speed is too fast to allow sufficient time for a detailed examination of each carcass as it passes the inspector. For this reason, as soon as the inspector detects any abnormal condition, a

TABLE VI—*Animals found in a dead or dying condition and tanked*

CLASS	CARCASSES
Cattle	4,635
Calves	4,206
Sheep	9,565
Swine	46,904

retained tag is placed on the carcass and it is switched off the line of kill and sent to a space set aside for final examination. These carcasses are designated as retained carcasses. Here these retained carcasses are given a thorough examination and either passed for food or condemned. It should be understood that

TABLE VII—*Condemnations on reinspection*

PRODUCT	POUNDS
Beef	3,573,448
Pork	7,112,951
Mutton	42,023
Veal	46,538

the larger percentage of retained carcasses finally passes for food.

The federal government also maintains laboratories to assist in the examination and analyses of meat and meat food-pro-

ducts and substances used in connection with their preparation, such as cereals, spices, condiments, coloring materials, water supplies, denaturing oils, etc.

Lexington! Let's Go!

MINERAL MIXTURES MAY BE HARMFUL

Many expensive complex mineral mixtures are being fed to dairy cattle. These mixtures usually consist of different combinations of bone meal, calcium carbonate, common salt, copperas, sulphur, Glauber's salt, Epsom salt, potassium or sodium iodid, hardwood ashes, and charcoal, the idea of such a mixture being, if one mineral did not do the work another one would. In the past the belief has been prevalent that if a mineral failed to do good, at least it would do no harm. Results at this station, where heifers are being fed a complex mineral mixture in addition to a basal ration, show that a mineral mixture may be harmful to dairy heifers when fed over a long period at the rate of two ounces of mineral daily. Minerals, such as Epsom salt, Glauber's salt, copperas and sulphur are medicines and should be used accordingly.

(Excerpt from address by Professor O. E. Reed, professor of dairy husbandry, Michigan State College, before the Michigan State Veterinary Medical Association, East Lansing, June 23, 1925.)

Yes—Suh! Lexington, Ky., Aug. 17-18-19-20, 1926

ON THE WAY TO LEXINGTON



A Pennyroyal Farm. Both plough and pasture land are shown in this double sinkhole, one of which is drained.

ANCYLOSTOMA BRAZILIENSE DE FARIA, 1910, A PARASITE OF THE DOG IN THE UNITED STATES

By EMMETT W. PRICE

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Ancylostoma braziliense was first described by Gomez de Faria, from dogs and cats, in the vicinity of Rio de Janeiro, in 1910. Looss, in 1911, described a similar parasite from the civet (*Vivericula malaccensis*), in Ceylon, under the name of *A. ceylanicum*. Since these species were described they have been reported by different workers from a large variety of hosts from many tropical countries. Darling (1924),¹ from an extensive study of material from different sources, concludes that *A. ceylanicum* is not a distinct species but is the same as *A. braziliense*. This conclusion is in accord with that of Gordon, Lane, and others.

It has been a custom of the writer to examine all animals autopsied by him, for parasites, in order to determine the species that occur in Texas and to collect data as to their distribution. Recently a species of hookworm was collected from a dog that corresponds to the description given for *A. braziliense*, and since this parasite has not heretofore been reported from this country a note on its occurrence may be of interest.

The animal, a female setter, from which these parasites were collected, had been raised in Birmingham, Alabama, but for the past two years had been owned by a man at Corrigan, Polk County, Texas. On January 18, 1926, this dog died at the Veterinary Hospital, where she had been sent to be treated for carcinoma. At autopsy a slight hookworm infestation was noted. From the gross appearance of the worms it appeared that two species were present and this was confirmed by a preliminary microscopic examination.

A total of twenty-three hookworms was found, fifteen of which were *A. caninum* and the remainder *A. braziliense*. Six of the latter species were females, three of which measured 10 mm. and three 9 mm. in length. The two males measured 7 mm. and 8 mm. in length. While living, the specimens of *A. braziliense* were smaller, more slender and lighter in color than *A. caninum*. When killed in warm alcohol, they were straighter

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and lacked the slight dorsal curving of the body which is common in fixed specimens of *A. caninum*.

Microscopic examination of the buccal cavity revealed the presence of a large triangular tooth, situated on each side, near the anterior edge of the mouth capsule. A small accessory tooth is situated on each side below or behind and on a deeper plane, so that only the tip projects toward the median line (fig. 1). There were also present a pair of triangular, internal, ventral teeth, located on each side of the entrance to the esophagus and which are best seen when the specimen is viewed from the side. The other characters correspond to those described for *A. braziliense*.

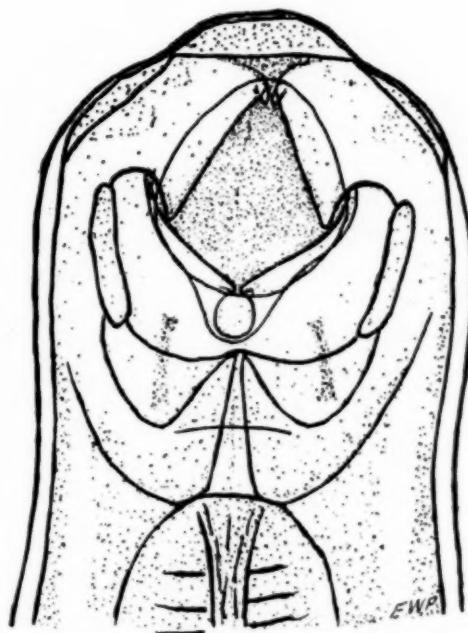


FIG. 1. *Ancylostoma braziliense*. Anterior extremity of male.

This species has been reported from man, dog, cat, lion, leopard, tiger, civet cat, wolf and sloth bear. In man it is reported to occur in relatively small numbers and in this respect is not as important as the common human hookworm (*Necator americanus*).

The geographical distribution so far as known is limited to tropical and subtropical countries, it having been reported from Brazil, China, Ceylon, Accra (Gold Coast), India, Java, Sumatra, Malay Peninsula, Panama, Philippines, Siam, Sierra

Leone and the United States (Texas). Nothing is known of the distribution of this species in this country. It is probably more or less definitely established in Texas, since infestation in this case was evidently acquired in this state.

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A VEST POCKET ESSAY ON KNEES

By I. K. ATHERTON, *College Park, Md.*

The editor of a certain daily newspaper opines that "nothing as ugly as a knee can be very naughty." This ink-slinger, for once, may be right, but it must be admitted that while a pig's knuckle may not be naughty it is awfully nice—especially when cooked with cabbage that has reached the age of respectability in a kraut-barrel. It is undoubtedly true that Dame Nature did not anticipate "roll-tops" when she decided on the style of architecture for knees. However, since the advent of this new fad in stockings, it is apparent to a casual observer that if the "finger prints" of all knees were taken, no two pairs would be found alike. In fact, it is evident that in but few cases would the pair exhibited by any one owner prove to be mates. In many instances the use of some effective anti-knock device appears to be indicated, while in other cases the pair must be entire strangers, for they never meet. To the man who has reached the age where he begins to consider reforming, it appears that the chief function of knees is to harbor the pangs of rheumatism.

In the swine world, one will find a symmetry of knees which the human race can not boast of, yet its matrons and flappers do not employ the Scottish system of ventilation. In fact, propriety forbids that they sport 'em bare. While on this subject we must realize that there will be a scarcity of pig knuckles this fall. Not only is there a shortage of hogs, but reports from various parts of the country indicate that hog cholera is taking its annual toll. While Maryland has experienced but little of the disease this year, the time is fast approaching when swine raisers must be on the alert to protect their hogs from its ravages. If they will only remember that infected pork in garbage, table-scrap, kitchen swill, etc., and the introduction of infected hogs are responsible for starting practically all primary, or new outbreaks of cholera in Maryland, the necessary precautions will be plain.

EGGS OF *TOXASCARIS LIMBATA**

By HOWARD CRAWLEY, Philadelphia, Pa.

Pennsylvania Bureau of Animal Industry

The observations to be described herein are based on the measurements of two thousand eggs of *Toxascaris limbata*, one-half of which were obtained from the feces of dogs, the other half directly from the worms. Before taking up the statistical data, however, it is desirable to give a short account of the morphology of the egg itself, since the accounts given in even recent general works on parasitology leave something to be desired.

It is, however, very accurately described by Hall,¹ who says: "In the genus *Toxascaris* the eggs are ellipsoidal, clear and smooth in appearance, with an outer clear, double-contoured chitinous shell and an inner yellowish membrane with interlaced striations giving the appearance of fibres."

Three simple, but very accurate figures accompany this description.

To this may be appended the following: The chitinous shell varies from 2.5 to 3.0 microns in thickness, and is thus, relative to the size of the egg, very thin. It is separated from the fibrous membrane by a very narrow cleft, which in many eggs is virtual rather than actual. The fibrous membrane varies in thickness not only in different eggs, but in different parts of the same egg and, as Hall says, has all the appearance of a mat of closely interwoven fibres, directed circumferentially. Measurements show it to be from 5.0 to 10.0 microns thick, thus exceeding the chitinous shell from two to four times.

Fundamentally, the egg of *Toxascaris limbata* is an ellipsoid, but there are variations. These are, first, the ovate eggs, which are symmetrical with regard to the longitudinal axis, but with one end narrower than the other, and, second, what may be designated as the hat-shaped eggs, which are symmetrical with regard to the transverse axis, but with one side flatter than the other. In 407 eggs in which this fluctuation in shape was noted, 249 were ellipsoidal, 136 hat-shaped and 22 ovate. Throughout, however, these fluctuations are slight and scarcely noticeable when the eggs are viewed under low microscopical powers.

*Contributions of the Pennsylvania Bureau of Animal Industry, Department of Agriculture.
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EGGS FROM FECES

As already stated, 1,000 eggs from the feces of dogs were measured. The average length was 85.04 microns, the average breadth 71.6. The extremes of length were 113 and 74 microns, of breadth 83 and 60 microns.

This thousand eggs were obtained from 21 dogs, the number per dog varying from 2 to 240. Disregarding animals from which only a few eggs were obtained, the findings are shown in table I, the several items of which are arranged in the order of mean length.

TABLE I—*Data concerning eggs obtained from feces*

SPECIMEN	EGGS	MEAN DIMENSIONS (MICRONS)	RATIO (BREADTH TO LENGTH)
16355	31	89.2 x 71.6	80.3
17541	100	88.3 x 72.7	82.3
15693	60	87.3 x 72.2	82.7
17030	100	87.2 x 70.7	81.1
18163	107	84.4 x 71.7	84.2
17617	240	83.5 x 71.7	85.9
—	50	82.8 x 71.7	86.6
16379	100	82.0 x 70.0	85.3
16977	49	80.4 x 72.6	90.3

It is to be observed from the table that the mean length of the eggs varies according to the host animal from which they were recovered, the extremes being 89.2 and 80.4 microns. Taking the mean length of all eggs recovered from the feces as a standard, the percentages come out to be 108 and 94. This is of course a function of the worm population infesting the dogs in question. The breadth, however, is far less variable, the percentages being 101.5 and 97.8.

It is also to be observed that the mean breadth does not follow the mean length. The shortest eggs found, from specimen 16977, were almost the broadest, and broader than those from longest eggs, from specimen 16355. The same facts are perhaps better brought out by the column giving the ratios of breadth to length, which is least in the longest eggs and greatest in the shortest. There is further a fairly regular increase in this ratio from the longest to the shortest eggs.

In a paper² published in 1925 the present author showed that the shorter eggs of *Ankylostoma caninum* were not only relatively, but actually broader than the longer eggs. This same phenomenon is in evidence in the case of the eggs of the species of *Ascaridia* infesting chickens and pigeons. It may be surmised

then, that the condition is not unusual with nematode eggs, the shorter specimens being always relatively and sometimes actually broader than the longer. The result is that the actual volume of the eggs tends toward uniformity.

EGGS FROM WORMS

The remaining thousand eggs were recovered from seven worms, the numbers from each varying from 50 to 230. The mean length was 88.9, the mean breadth 71.6 microns. The extremes were 102 and 75 microns for the length; 88 and 62 microns for the breadth. These figures may be compared with those of the eggs recovered from feces.

Source	Mean Dimensions	Extremes of	
		Length	Breadth
Worms	88.9 by 71.6	102 to 75	88 to 62
Feces	85.0 by 71.6	113 to 74	83 to 60
All eggs	87.0 by 71.6		

The eggs taken from the worms are thus seen to be longer than those from the feces, although the breadth is the same. This also was observed for the eggs of *Ascaridia*. The explanation which at first suggests itself is that the larger eggs do not so readily pass the meshes of the sieves used in fecal examination. Against this, however, we have the fact that the largest egg found, measuring 113 microns long, came from the feces.

Of the seven *Toxascaris* worms used, three were obtained in the course of the routine examinations at the Pennsylvania State Laboratory, the remaining four through the courtesy of the Detroit College of Medicine and Surgery and the Zoological Division of the United States Bureau of Animal Industry at Washington. The sources are thus widespread. Table II gives the detailed findings.

TABLE II—Data concerning eggs obtained from worms

SOURCE	EGGS	MEAN DIMENSIONS (MICRONS)	RATIO (BREADTH TO LENGTH)
Spec. 17129			
Worm 1	200	92.8 x 70.0	75.4
Worm 2	200	85.6 x 69.2	80.8
Spec. 18849	110	85.7 x 70.4	82.3
Detroit			
Worm 1	100	89.5 x 70.9	79.2
Worm 3	230	91.5 x 76.9	84.0
Worm 5	50	83.7 x 66.8	79.9
Washington	110	87.1 x 71.3	81.9

The fluctuation in length following the several worms, is considerable, from 92.8 to 83.7 microns. Taking the average length, 88.9 microns, as a standard, the percentages are 104.4 and 94.2. Further, as also held for the eggs recovered from the feces, the breadth does not follow the length. Thus, the eggs from specimen 18849, with a mean length of 85.7 microns, were actually broader than those of worm 1 of specimen 17129, the longest found. In this last worm, also, the ratio of breadth to length is only 75.4, while that of worm 3, from Detroit, is 84.0.

It is also of interest to note the difference in the mean length of the eggs of the two worms from specimen 17129, since this is considerable. Table I showed that eggs recovered from the feces of different dogs varied conspicuously in length, but in such cases nothing was known as to the number of worms yielding the eggs. The present case, however, shows that the same dog may harbor worms giving eggs of very different sizes.

VIABILITY OF THE EGGS

A few observations were made bearing on the length of time during which *Toxascaris* eggs may remain alive.

On being received at the laboratory, the dog feces were screened and the catch placed in a tall jar, to sediment. To this liquid was added a sufficient quantity of formaldehyde to sterilize. Generally the examination was made the day after receipt, so that the eggs were exposed to room temperature for but one day. How long a time intervened between receipt and discharge from the dog was, of course, unknown.

After examination, the sediment, together with a small quantity of the liquid, was transferred to a small jar, and kept in the ice-box until discarded.

Examinations of this material were made from time to time. The eggs develop, despite the low temperature, and eventually those which remain alive at all come to contain embryos. These, inert at the temperature of the ice-box, quickly become motile at room temperature. In a lot kept in the ice-box for 115 days, 100 eggs were counted, of which 87 contained motile embryos, while in the remaining 13 the embryos were either dead or more or less macerated. Of twelve eggs kept in the ice-box for 283 days, four showed motile embryos, five embryos which were still intact, but motionless, while in three the embryos were clearly dead. Of two lots, kept respectively for 366 and 487 days, the eggs were all dead, the embryos being reduced to amorphous masses.

The data just given warrant the inference that after a period of perhaps 100 days, the eggs begin to die, and that the limit is about one year. This, however, seems at times to be exceeded. In one lot of eggs kept in the ice-box for 406 days, a few revealed feebly motile embryos.

It is finally of interest to note that, thus preserved, the eggs appear never to hatch, the embryo dying while still inclosed within the shell.

SUMMARY

1. The eggs of *Toxascaris limbata* are fundamentally ellipsoidal, inclosed in a clear chitinous shell which does not exceed three microns in thickness, inside of which is a membrane consisting of a mat of closely interwoven fibres. This mat is variable in thickness, but keeps within the limits of five to ten microns.

2. The mean dimensions are 87.0 microns long by 71.6 broad. The extremes observed were 113 to 74 microns for the length; 88 to 60 microns for the breadth.

3. Eggs recovered from the worms are longer, but not broader than those recovered from the feces. Respectively, the mean dimensions were 88.9 by 71.6, and 85.0 by 71.6 microns.

4. The shorter eggs are not also narrower, but relatively and sometimes actually broader than the longer eggs. Thus the volume tends toward uniformity.

5. Preserved in a sterile medium, in the ice-box, the period of viability is of the order of one year. In one case, however, living eggs were found after 406 days.

6. Thus preserved, the eggs apparently never hatch.

REFERENCES

- ¹Hall, M. C.: Diagnosis and Treatment of Internal Parasites. (Chicago, Ill., 1923) p. 23.
²Crawley, F.: Eggs of *Ankylostoma Caninum*. Jour. A.V.M.A., lxi (1925), o.s. 19 (4), pp. 487-489.

RETESTS IN HILSDALE COUNTY

The retesting of all cattle in Hillsdale County, Michigan, was recently completed. All of the testing was done by the six accredited veterinarians residing in the county, which was one of the first counties in the United States to be declared a modified accredited area. The three-year period of accreditation will expire this month (July). The County Board of Supervisors provided funds for the work of retesting and the tests were conducted by the local veterinarians in a manner that was highly satisfactory to the state officials.

TENIACIDAL VALUE OF CERTAIN DRUGS FOR CHICKENS

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Tapeworm infestation is certainly rapidly increasing in poultry flocks in Wisconsin. This statement is based on the larger percentage of birds found infested at autopsy each succeeding year. The increase corresponds closely with the rapid development of the baby-chick industry, and may be accounted for in part by the fact that an increasingly larger number of chickens is being kept on the same acreage. Under these conditions, intestinal parasites of all kinds thrive and a greater proportion of the flock becomes infested. As would be expected, because the drugs ordinarily prescribed have not given satisfactory results, poultrymen are requesting authoritative information relative to means of combating intestinal parasites in general and tapeworms in particular. The experimental work here reported was undertaken to secure the needed information.

Most poultry teniacides now in use cause more or less injury to the patient. Chickens in a weakened condition frequently die, while egg-production is usually retarded in laying hens, as a result of the treatment. This is another reason why the study was deemed advisable.

Four drugs were selected for trial, viz., kamala, arecolin hydrobromid, Lewis' concentrated lye, and a combination consisting of eserin sulphate and pilocarpin hydrochlorid in the ratio of 1:2. Forty-six birds were given the kamala treatment, while 5, 3 and 2, respectively were used for the other drugs. The details of the experiments and the results secured with each bird are given in the accompanying tables.

Individual cages were used. The bottoms of these cages were fitted with removable pans, covered with one-inch-mesh wire. This method was satisfactory in that we were able to collect all of the fecal material in good shape for examination.

The kamala was mixed with 35 per cent alcohol and the mixture deposited directly into the crop by means of a rubber tube

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TABLE I—*Kamala as a teniacide for chickens*

BAND No.	WEIGHT (GRAMS)	HOURS FASTED	DOSE (GRAMS)	FECAL EXAMINATION FOR TAPEWORMS	POSTMORTEM EXAMINATION FOR TAPEWORMS	REMARKS
255	650	• 36	0.5	None	None	
256	600	36	0.5	One segment	None	
257	475	36	1.0	None	None	This pullet prostrated in about $\frac{1}{2}$ hour after feeding. Complete recovery in about 3 hours.
258	850	36	1.0	Positive. Number not determined.	None	
259	750	36	1.0	Positive. A few segments.	None	
260	2000	Not fasted. Crop emptied.	1.5	Positive	None	Many epithelial cells in feces after treatment.
261	1050	24	1.0	Positive. One tape-worm.	None	Duodenum markedly thickened and inflamed.
262	1800	24	0.5	None	None	Duodenum markedly thickened and inflamed.
263	1700	24	0.5	None	None	Duodenum markedly thickened and inflamed.
264	1750	24	0.5	Positive	None	Kamala fed at 8:40 a. m. One tapeworm passed in feces at 11:00 a. m.

TABLE I—*Kamala as a teniacide for chickens—Continued*

BAND NO.	WEIGHT (GRAMS)	HOURS FASTED	DOSE (GRAMS)	FECAL EXAMINATION FOR TAPEWORMS	POSTMORTEM EXAMINATION FOR TAPEWORMS	REMARKS
265	850	24	0.5	Positive	None	Kamala fed at 8:40 a. m. Three tape-worms at 2:00 p. m.
266	1050	24	0.5	Positive	None	Kamala fed at 8:40 a. m. Tapeworm segments passed at 2:30 p. m.
267	1750	24	0.5	Positive	One tapeworm	Kamala fed at 8:40 a. m. Tapeworm segments at 11:15. Purging at 12:55.
268	1100	24	0.25	None	None	—
269	600	24	0.25	Positive	None	Found 2 tapeworms in duodenum of a control chicken from same lot.
270	1000	24		None	None	Many cecum worms in feces and in ceca.
271	900	24	0.5	None	None	—
272	900	24	0.5	Several tapeworms	None	—
273	800	24	0.5	One segment	None	—
274	1500	18	0.5	Several segments	None	—
275	1100	18	0.5	None	None	—
276	1075	18	0.5	None	None	—

TABLE I.—*Kamala as a teniacide for chickens—Continued*

BAND No.	WEIGHT (GRAMS)	HOURS FASTED	DOSE (GRAMS)	FECAL EXAMINATION FOR TAPEWORMS	POSTMORTEM EXAMINATION FOR TAPEWORMS	REMARKS
277	800	18	0.5	None	None	
927	150	24	0.5	5 small tapes	None	
928	650	24	0.5	None	None	
929	650	24	0.5	None	None	
930	850	24	0.5	None	None	
931	1300	24	0.5	Several tapeworms	None	
932	550	24	.05	None	None	
933	850	24	0.5	None	None	
934	1250	24	0.5	None	None	
935	900	24	0.5	None	None	
936	1100	24	1.0	Numerous tapeworms	None	
937	1250	24	0.5	1 large tapeworm	None	
938	1100	24	2.0	2 large tapeworms	None	
939	1600	24	0.5	Tapeworm segments	None	

Large dose of kamala had no bad effect on the bird.

TABLE I—*Kamala as a teniacide for chickens—Concluded*

BAND No.	WEIGHT (GRAMS)	HOURS FASTED	DOSE (GRAMS)	FECAL EXAMINATION FOR TAPEWORMS	POSTMORTEM EXAMINATION FOR TAPEWORMS	REMARKS
940	1100	24	2.5	Several segments	None	No bad effects from large dose of kamala. This bird paralyzed at time of feeding.
941	750	24	0.5	Many segments	None	No bad effects from large dose of kamala.
942	1750	24	3.0	None	None	No bad effects from large dose of kamala.
943	1250	24	0.5	None	None	
944	700	24	0.5	None	None	
945	1300	24	0.5	None	None	
946	1500	24	0.5	None	None	
947	1000	24	0.5	None	None	
948	900	24	0.5	Numerous tapeworm segments	None	This bird in comatose condition a few hours after feeding. Recovery complete by the next morning.
949	1200	24	1.0	None	None	

and funnel. With the exception of the two noted in the table, no bad results were observed. Apparently recovery was complete in the two that were prostrated in a few hours. (See table I.)

The arecolin hydrobromid tablets were dissolved in water and deposited directly into the crop by means of a rubber tube and

TABLE II—*Arecolin hydrobromid as a teniacide for chickens*

BAND NO.	WEIGHT (GRAMS)	HOURS FASTED	DOSE (GRAMS)	FECAL EXAMINATION FOR TAPE-WORMS	POST-MORTEM EXAMINATION FOR TAPE-WORMS	REMARKS
775	515	24	0.1	Positive	16	Died
776	755	24	0.05	Negative	None	Died
253	625	36	0.1 (in 10 cc water)	None	None	Killed in semi-comatose condition
254	450	36	0.1 (in 10 cc water)	None	None	Killed in semi-comatose condition
109	1250	36	0.1 (in 10 cc water)	None	Numerous	Killed in semi-comatose condition

funnel. It will be noted from the table that arecolin hydrobromid is far from an efficient teniacide for poultry. The birds either died or were killed in a comatose condition twenty-four to seventy-two hours after administration. (See table II.)

TABLE III—*Concentrated lye as a teniacide for chickens*

BAND NO.	WEIGHT (GRAMS)	HOURS FASTED	DOSE (GRAMS)	FECAL EXAMINATION FOR TAPE-WORMS	POST-MORTEM EXAMINATION FOR TAPE-WORMS	REMARKS
772	725	24	2 in 110 cc water	None	None	Died. Intense inflammation of the duodenum
773	780	24	1 in 60 cc water	Positive	None	Died. Intense inflammation of the duodenum and proventriculus
774	770	24	0.5 in 50 cc water	None	None	Died. Intense inflammation of duodenum and proventriculus and gizzard

Lewis' concentrated lye was used. One gram was dissolved in 100 cc of water and the solution deposited directly into the crop by means of a rubber tube and funnel. It can readily be seen that lye is too irritating for general use. Death resulted in from thirty-six to ninety-six hours after administration. (See table III.)

The eserin-pilocarpin tablets were dissolved in water and deposited in the crop by means of a rubber tube and funnel. As shown in the table, the drugs are inefficient as teniacides, as the birds were dead in about ninety-six hours. (See table IV.)

TABLE IV—*Eserin sulphate and pilocarpin hydrochlorid as a teniacide for chickens*

BAND No.	WEIGHT (GRAMS)	HOURS FASTED	DOSE	FECAL EXAM- INATION FOR TAPE- WORMS	POST- MORTEM EXAM- INATION FOR TAPE- WORMS	REMARKS
777	770	24	0.2 gr. eserin, 0.4 gr. pilocarpin (in 4 cc water)	None	Numerous	Died
778	1010	24	0.3 gr. eserin, 0.6 gr. pilocarpin (in 6 cc water)	Positive	Numerous	Died

FLOCK TREATMENT WITH KAMALA

Kamala was fed two flocks of 25 birds each, at the rate of one gram per bird, mixed with a small amount of moistened white bread. This mixture was placed in a trough, to which the birds had free access. Egg-production, general constitutional disturbances and palatability of the drug were carefully noted. In both flocks, the mixture was cleaned up in 30 minutes, showing that it is apparently no trouble to get a flock to take this teniafuge in this manner.

There was a careful trap-nest record kept on each flock, before and after treatment, but no decrease in the egg-production was noted. Careful observations were made on the birds following the administration of kamala, but so far as could be observed, none of them suffered any bad effects.

For those not familiar with kamala, a brief description of the source and properties should be of interest. It is secured from the glands and hairs from the capsules of *Mallotus philippensis*, a small tree indigenous to India, China and the Philippines. It

is a granular, brick-red or brownish-red powder, odorless and nearly tasteless, and imparts a deep-red color to alkaline liquids, alcohol, ether or chloroform. The active principle is rottlerin.

Kamala was used as a remedy for tapeworms in India as early as the tenth century. When given to British soldiers in India, they are said to pass worms in a few hours, the worms being dead and the patient apparently suffering no bad effect. Kamala is a purgative in itself, and therefore no purgative need be given in connection with its administration.

About the time of the completion of our investigations, the report of similar work by Hall¹ came to our attention. As our work was done entirely independently of Dr. Hall's and was even completed before his report appeared, it is interesting to note how closely the results correspond.

SUMMARY AND CONCLUSIONS

Three chickens were fed lye; five were fed arecolin hydrobromid; two, eserin and pilocarpin and forty-six, kamala.

It will be noted that while the lye was successful in removing tapeworms, it was very irritating to the mucous membrane of the proventriculus and duodenum, and so toxic that death followed its administration in the three birds fed.

Arecolin hydrobromid not only failed to remove the tapeworms from the birds, but was very toxic.

Eserin and pilocarpin gave unsatisfactory results, similar to those obtained by feeding arecolin hydrobromid.

Of the four drugs used, kamala gave by far the most promising results. Our findings do not differ materially from those reported by Hall. In two instances the birds were prostrated shortly after feedings. Apparent recovery, however, took place in a few hours.

Tapeworm segments were found in the feces after feeding kamala in twenty-two of the forty-six. In forty-five of these chickens we failed to demonstrate tapeworms on postmortem examination. In twenty-three we failed to demonstrate tapeworms either in the feces or on postmortem.

Our investigations demonstrate that kamala, in one-gram doses, is an efficient teniacide. Kamala need not be followed by a purge.

REFERENCE

¹Hall, Maurice C., & Shillinger, Jacob E.: Kamala, a satisfactory anthelmintic for tapeworms in poultry. No. Amer. Vet., vii (1926), 3, pp. 51-58; 4, pp. 52-56.

CLINICAL AND CASE REPORTS

(Practitioners and others are invited to contribute to this department reports of unusual and interesting cases which may be helpful to others in the profession.)

ISOLATION OF A BIPOLAR ORGANISM FROM A COW WITH MASTITIS*

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and

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REPORT OF A CASE OF MASTITIS IN A PURE-BRED HOLSTEIN

May 25, 1925, a cow, five years old, with a calf one week old, was found to have a slight enlargement of the right rear quarter of the udder which the owner believed was garget. The affected quarter was not highly sensitive and the calf was allowed to nurse for several days. The cow then became obviously ill, with loss of appetite and marked diminution in the flow of milk from all four quarters but more especially from the affected quarter. The calf was then taken from her.

Examination: The right rear quarter was found to be about one-fourth larger than the left rear quarter and somewhat sensitive. It yielded an exudate containing flakes of coagulated milk which readily precipitated on standing, leaving a clear, deep-yellow fluid. The clinical manifestations and the character of the exudate were distinctly different from those of the usual type of mastitis. A diagnosis of parenchymatous mastitis was made, and a sample of secretion from the affected quarter collected in a sterile manner for culture.

Laboratory examination: One cubic centimeter of the exudate was inoculated into glucose-brain broth and a loopful spread over a blood-agar plate. After incubation for eighteen hours, the broth showed a slightly-acid-producing culture of small, Gram-negative, faintly-bipolar-staining organisms, morphologically indistinguishable from members of the genus *Pasteurella* which we have isolated frequently from animals with hemorrhagic septicemia. The blood-agar plate also showed a pure culture,

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there being about twenty colonies identical in appearance with those shown by several strains of *Pasteurella bovisepctica* on this medium. The colonies were quite small, discrete, non-hemolytic, and bluish-gray. Gram stains showed that these colonies were of the same organism as found in the brain-broth culture. Smears prepared from both sources and stained according to the carbol fuchsin-acetic acid method clearly demonstrated the bipolar characteristic of the organism. Litmus milk was made acid and the litmus reduced.

Experiment: Rabbit 667 was injected intravenously, May 26, with 2.0 cc of the eighteen-hour, glucose-brain-broth culture, and guinea pig 668 was injected subcutaneously with 1.0 cc of the same material. The rabbit was found dead the following morning. Necropsy revealed a marked increase in pericardial fluid, unusual hemorrhagic areas in the thymus and some areas of pulmonary congestion. Cultures were made from the heart-blood, spleen and lung. After twenty-four hours all cultures showed a pure growth of bipolar organisms. The guinea pig remained well.

May 29, a second sample of secretion from the affected quarter again yielded a pure culture of bipolar organisms. There was little improvement in the animal's condition at this time. June 5 a third sample of secretion was obtained from the diseased quarter and a control sample from the left rear quarter. Both of these proved to be sterile. The cow's condition was now better and the secretion from the udder was increasing in quantity, the fluid from the affected quarter having a cloudy appearance. The inflammation gradually subsided, the flow of milk increased and the cow returned to normal health. She was disposed of about four months later; the affected quarter had never fully regained its function. The calf showed no ill effects as a result of having nursed the mother when the udder was first affected.

COMMENTS

From our examination we believe the organism isolated to be of the genus *Pasteurella*, probably *Pasteurella bovisepctica*. Similar cases may have occurred before, but we have been unable to find any account of such an organism being encountered previously in bovine mastitis. The possibility of contamination from soil or feces is extremely remote. In many cases of mastitis we have found that proper technic in collecting specimens (thorough cleansing of teats and under surface of udder, followed by sponging

of the teat, especially the opening, with 95 per cent alcohol, and discarding the first few streams of milk drawn) will yield a pure culture of the infecting organism in practically every case. The organism in this case was isolated twice in pure culture, and at the time the second specimen was obtained the cow had been isolated on a farm where there had never been any hemorrhagic septicemia infection so far as was known.

Several interesting features are presented. That the cow had an evidently localized infection, without pronounced general disturbance, with an organism often encountered in this section in fatal cases of hemorrhagic septicemia, is an unusual manifestation of the pathogenicity of this organism and would seem to indicate an extremely low grade of virulence. That the organism was pathogenic for rabbits but that the calf suffered no ill effects from nursing may be explained in several ways: (1) The cow may not have permitted nursing on the affected quarter because of pain incident thereto; (2) many animals of nursing age possess a relative immunity to certain types of infection; (3) infection by organisms of the *Pasteurella* group does not always take place by ingestion; and (4) the calf may have resisted the infection because of low virulence of this particular strain. We have encountered several strains of *Pasteurella bovisepctica* which have been pathogenic for rabbits but not for guinea pigs, so the results of animal inoculation were also characteristic of the genus to which the organism apparently belongs.

COCCIDIOSIS IN THE DOG

By FRED D. WOOD, Ardmore, Pa.

In this article the writer desires to call attention to several cases and present the history clearly enough to point out that, at times, coccidia (*Diplosopora bigemina*) become pathogenic for canines, especially dogs. The details, however, would take too much space to be presented here.

In a litter of seven Pekingese puppies, ten weeks of age, the oocysts of *Diplosopora bigemina* were demonstrated in the fecal discharge. All of these puppies had been treated for parasitism prior to the fecal examination and, subsequent to same, no ova or other forms of parasites were found.

The prodromal symptoms simulated those of the early stages of pulmonary distemper, with the exception of the absence of the marked elevation of temperature so frequently observed in

distemper. The temperature remained normal or, in some cases, was only very slightly elevated.

During the course of the disease, which covered a period of seven days, two of the seven puppies died. The remaining five were apparently somewhat improved.

The only treatment that had been administered was three minimis of oil of eucalyptus in thirty minimis of cod-liver oil, three times a day. The diet consisted principally of condensed milk, with raw eggs, cream of wheat and oat meal, alternately.

On the ninth day another puppy died without apparent warning. Upon postmortem, numerous petechiae were found in the small intestine, especially in and surrounding Peyer's patches.

On the tenth day all of the four remaining pups manifested symptoms of acute cystitis. Two of them had developed paraplegia and these two died on the eleventh day. On the twelfth day one of the remaining two died and the postmortem findings were as those described above. The last of the seven apparently recovered, only to meet death two weeks later, through an accident.

At the time of this writing the author has demonstrated oocysts of *Diplospora bigemina* in the fecal discharge of sixteen dogs, consisting of one female fox terrier, about two years of age; eight puppies, ranging in age from eight weeks to four months, and the seven Pekingese described above.

With the exception of the Pekingese puppies, none of the dogs had manifested symptoms. The oocysts were found in fecal material while it was being examined for other parasites. A Scotch terrier puppy, three months of age, in which oocysts were found, died without apparent cause, but postmortem revealed lesions similar to those described in the Pekingese puppies.

Salol treatment was administered to this group of dogs showing no symptoms. It was given in $2\frac{1}{2}$ -grain doses, three times daily, to puppies, and 5 grains to older dogs. After its administration in this manner, over a period of seven days, no oocysts could be demonstrated in the feces of dogs in which they had been found previously.

The fact that no oocysts could be found in the feces of these dogs, after a course of salol treatment, is a possible indication of its value in this treatment, but one is not justified in drawing definite conclusions until after the treatment has been tried on a larger number of cases.

INTUSSUSCEPTION, INVAGINATION, OR INTESTINAL TELESCOPING IN A SILVER BLACK FOX

By A. A. LEIBOLD

Director, Biological Laboratories

W. F. Straub Laboratories, Inc.

Chicago, Ill.

This is briefly defined as the infolding of one part of the intestine within another part. This may occur in any of the various parts of the intestine, e. g., colon, ileum, or at ileo-cecal opening (where ileum passes through ileocecal valve into cecum), etc. The invagination or telescoping may occur forwards or backwards. The normal rhythmical, wave-like contractions of the intestinal muscles sometimes become exaggerated, due to overstimulation. This may be caused by certain foods; certain drugs; diarrhea; ravenous eating; thus overstimulating peristalsis; excitement, resulting in intestinal spasms, etc.

Gross pathology: In the case autopsied by the writer, the invaginated parts extended for over four inches. The ileum had passed through the ileo-cecal opening and pushed itself past the cecum into the colon several inches and lay there with the mucous membrane presenting many swollen folds or wrinkles. The entire involved parts (particularly that of the ileum lying within the colon) were blue-black and greatly swollen. The lumen of the intestine was completely closed.

Symptoms: The fox did not present much other than its usual actions. It was observed not to be as active as usual and preferred seclusion. The appetite became nil, although just when was not observed by the caretaker. There were no bowel movements, although the animal was seen to strain; nor were tubular intestinal casts seen to be passed. No attempt at vomiting was observed.

This is the only case brought to the writer's attention during the last several years of work among foxes. It is difficult to persuade the owners or caretakers to save fox carcasses for autopsy, as they do not realize the advantage in such work and the information gained from it.

ERRATUM

In the report by Dr. M. J. Harkins, published in the June issue of the JOURNAL, the figure "196" in line 13, p. 376, should be "149."

REVIEW

INTERNAL SECRETIONS OF THE SEX GLANDS. Alexander Lipschütz, M. D. Williams & Wilkins, Baltimore, 1924.

Some books are referred to as timely. The work of Lipschütz can be said to be timely in the sense that the subject is much under discussion. But the subject and the way in which it is treated by the author are always timely. It is an important subject. There is an interesting preface by F. H. A. Marshall, of Cambridge, whom some of us have had the pleasure of meeting and listening to, in America. The book was first published at Berne, in 1919, with a German title denoting "The Puberty Gland and Its Functions."

To quote Marshall: "The reader will find in these pages a comparative and connected account of the endocrine functions of the gonads, so far as these are known, in all groups of multicellular animals. The importance of such knowledge has now become generally recognized, and the subjects treated are of profound interest for zoologists and physiologists alike, as well as for medical men, psychologists and students of eugenics. As a guide to the literature of a branch of endocrinology that has grown rapidly in recent years, the work should be of great value."

The book is written by the author in English and he has done remarkably well for a professor in the "Institute of Physiology of the University of Dorpat, Estonia." He is qualified, not only to review the rich literature of the world on this subject, a thing that he has done admirably; but also he has contributed measurably to that literature. This book would be quite unintelligible to one unfamiliar with biology and the biological research method. There is much of interest to the biologist, particularly the profuse illustrations, the majority of which are of histological preparations. To the medical man, and particularly, we believe to the veterinarian, there is much, not only of deep interest, but of great value both economically and in the matter of setting one right on the very important problems involving the functions of the interstitial gland. Reference is made to man and the other mammals, to the birds and fishes, to the reptiles and amphibia, even to the invertebrates.

The author has treated of the results of castration; the whole subject of the internal secretions of the sex glands, as respects

the origin of the secretions and their importance; the use of extracts of the sex glands as a means of furnishing the sexual hormone; the relation of the seminal vesicles and the prostate to the development of sex characters, intersexuality, eunuchoidism, and sexual precocity.

There is an interesting discussion of the relation of sex characters to sex specific hormones. It is shown that some of such characters are dependent and some are independent of these specific hormones.

The book closes with a very interesting discussion of some of the practical aspects of the problem with special reference to the influence of heredity, infectious diseases, and such poisons as alcohol. He discusses the relation of the subject to eugenics and the sterilization of the unfit. "The question of sex hormones is of interest also in relation to veterinary medicine and 'zoo-technics.' Many of those pathological conditions referred to in man in connection with the sex hormones may be observed also in the domestic animals."

There is a discussion of ovarian and testicular transplantation in hormonic deficiency and the procedure in Steinach's rejuvenation experiments. A careful and especially carefully trained reader will find this book both interesting and profitable. The reviewer is scarcely qualified to undertake a constructive criticism.

W. G.

ABSTRACTS

A COMPARATIVE STUDY OF PASTEURELLA CULTURES FROM DIFFERENT ANIMALS. Asazo Tanaka. *Jour. Inf. Dis.*, xxxviii (1926), 5, pp. 421-428.

Twenty-six strains of hemorrhagic septicemia organisms, from rabbits, cattle, sheep, swine, buffalo, guinea pigs, chickens and other birds, were compared as to their biochemic, cultural and morphological characteristics.

These comparisons showed that a marked similarity existed between strains isolated from various animals. No further evidence was found, by means of the agglutination and complement-fixation reactions, of indicated specific host differences among these organisms, although it is quite possible that group differences may occur.

The author concludes that, although the invasive power of these organisms is usually high, particularly when freshly isolated and especially for certain animals, notably the rabbit, their antigenic power is low as measured by the immunity stimulated in the animal and by immunological reactions in vitro.

S. S.

In the Heart of the Blue Grass
August 17-18-19-20, 1926

INFECTIOUS ABORTION IN CATTLE. (Eighth report.) Some Economic Phases of *Bacterium Abortus* Infection and Other Observations in Dairy Herds. Geo. C. White, Robt. E. Johnson, Leo F. Rettger and Jas. G. McAlpine. Storrs Agri. Exp. Sta. Bul. 135 (Dec., 1925).

It is now generally agreed that no disease is responsible for greater losses to the dairy farmer than the infections which center in the productive organs of cattle. Undoubtedly, the most widespread of these disturbances is the infection caused by the abortion bacillus of Bang.

A number of breeders are making an effort to reduce their losses from this infection through elimination and segregation measures. This procedure is based either upon the results of the agglutination test or, better still, upon the agglutination and complement-fixation tests used in conjunction with each other. Will it pay to eliminate abortion-reacting cows from herds?

The following facts, quoted from the bulletin, are based on work extending over a period of eleven years on non-reacting and reacting cows at the Storrs Agricultural Experiment Station.

The present data cover the eleven years from 1914 to 1924 inclusive. The herd averaged 30 cows in milk per year, constituted in the proportion of 16 abortion reactors and 14 non-reactors, and totaling 176 and 151 cow-years respectively. The annual milk yield per cow was 6663 pounds for the non-reactors and 5655 for the reactors and, as a consequence, the non-reactors each returned, above feed cost, \$28.41 more annually in value of milk (at 7½ cents per quart, or \$3.51 per cwt.) than the reactors. The total loss in product, therefore, for the 176 cow-years, is \$5,000.16 in eleven years.

Fifty-nine reacting cows sold during this time brought an average per cow of \$35.26 less than the 37 non-reactors. This represents a total depreciation of \$2,086.24, due to abortion infection.

During the period there were 32 more calves lost in the reacting group than in the non-reacting, representing a loss of \$20.59 per calf and a total loss of \$658.88.

These three losses among the reactors, namely, income from product, cow depreciation and calves, amounted to a total of \$7,745.28 for the eleven-year period, or \$44.01 per year for each infected cow. Even allowing for different values in other herds, if considered from an economic basis alone, it would seem that no one could afford to retain infected cows in the herd.

Fourteen cases of calving before the 215th gestation-day produced 1717 pounds of milk per cow less than in periods following a normal calving. Sixteen cases aborting between the 215th and 265th days produced 1051 pounds less per cow. The average shrinkage of these 30 cases was 1361 pounds of milk (16.6 per cent) which, at \$3.51 per hundred ($7\frac{1}{2}$ cents per quart), has a value of \$47.87. The normal yield of these 30 cows was between 7000 and 8000 pounds. In the first normal calving-period after an abortion the yield is back to normal.

The non-reactors required 1.82 services to produce each conception, whereas the reacting cows required 2.09 services. But following an abortion the reacting cows required 2.64 services per conception, equivalent to only 37.9 conceptions for each 100 services. However, if the cases following an abortion be deducted from the entire reacting group, the number of services per conception for the remainder is 1.97, not so much greater than that for the non-reactors. The *B. abortus* infection, therefore, does not influence conception greatly except directly following premature calving.

Cows yielding less than 275 pounds of fat required 1.85 services for each conception, while those yielding over 500 pounds of fat required 2.06. Yield in a herd of this kind, with good but not extreme records, has influenced the promptness of conception to a noticeable, but not a large extent.

Winter and summer have influenced the breeding condition somewhat, but not to a large extent. The services for conception in winter were 2.02 and in summer 1.89.

The age at which a heifer is first bred seems to have a marked influence upon the promptness of conception. Heifers under 15 months at first service required 2.4 services; from 15 to 19 months inclusive, 1.91 were necessary; from 18 to 20 months inclusive, 1.6 were necessary; from 21 to 23 months inclusive, 2.4; and over 24 months there were required 2.89 services to produce conception. From these data it would seem that from 16 to 20 months of age is decidedly the most favorable time to breed a heifer having good average development.

Except for service within the first 60 days after a calving, in which conception is slightly retarded, there seems to be neither a particularly favorable nor unfavorable period for breeding, in so far as the previous calving is concerned, even beyond 210 days.

The bull is the cause of larger variations in the number of services required for conception than any other factor considered.

G. W. R.

Yes—Suh! Lexington, Ky., Aug. 17-18-19-20, 1926

STUDIES ON ANTHRAX IMMUNITY. I. The Attenuation of *Bacillus Anthracis* by Means of Sodium Chloride and Other Chemicals. S. J. Schilling. *Jour. Inf. Dis.*, xxxviii (1926), 4, pp. 341-353.

While the Pasteur method of vaccination of animals is a valuable defensive weapon in reducing losses from anthrax, this vaccine has limitations. The fact that some animals do not react to the vaccine and appear to develop no immunity, while some others react too severely and develop vaccination anthrax and in still other animals the immunity is of relatively short duration, prompted the studies to produce a vaccine which could be used with a greater degree of safety, which would more uniformly produce protection in vaccinated animals and

which would give an immunity of greater duration than the Pasteur vaccine.

The work reported is concerned with the successful preparation of a vaccine answering the first of these requirements.

An attempt was made to attenuate cultures of anthrax bacilli by growing them on agar slants, to which had been added either sodium chlorid, potassium ferrocyanid, copper sulphate, sulphuric acid or sodium hydroxid, in different concentrations.

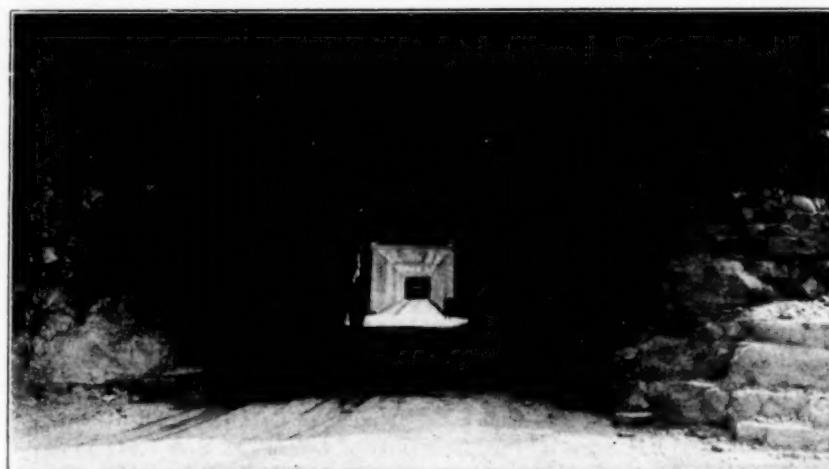
After growing the organism for seven weeks on agar containing 1 per cent of potassium ferrocyanid and for the same length of time on agar containing 0.15 per cent sodium hydroxid, no decrease in virulence was detected by inoculation of guinea pigs.

After six weeks of growth on agar containing 5 per cent sodium chlorid, marked attenuation of the organism was noted after injection into guinea pigs and rabbits.

Attempts to immunize guinea pigs with these NaCl-attenuated cultures failed, presumably because of the short time elapsed between injections. Rabbits were, however, successfully immunized with this attenuated culture so that they withstood injections of virulent cultures of anthrax bacilli in quantities regularly fatal to normal animals.

S. S.

ON THE WAY TO LEXINGTON



"Booneway," through the tunnel on to Brooklyn bridge.

ARMY VETERINARY SERVICE

CHANGES RELATIVE TO VETERINARY OFFICERS

Regular Army

Captain Forrest R. Harsh died at Camp Lewis, Washington, May 17, 1926.

Captain Fred W. Shinn is assigned to duty at the 8th C. G. A. D., Fort Sam Houston, Texas, to take effect on completion of his present tour of duty in the Panama Canal Department.

Captain H. K. Moore is relieved from duty at Fort Sheridan, Ill., effective in time to sail for China from New York City on July 28, 1926, and will report to the Commanding Officer, U. S. Army Forces in China, Tientsin, China.

Captain Vincent B. Wright is relieved from duty at Tientsin, China, effective on completion of his present tour of foreign service and assigned to duty at Fort Huachuca, Arizona.

Captain Chauncey E. Cook is relieved from duty as student at the Army Veterinary School, Washington, D. C., effective in time to sail from New York City on September 2, 1926, for Panama, for duty in the Panama Canal Department.

Lt. Colonel Eugene J. Cramer is relieved from duty at Omaha, Nebraska, and directed to report to the Commanding Officer, Seattle, Q. M. I. D., for duty not later than June 30, 1926.

Second Lieutenant Harry R. Leighton, at the termination of his course of instruction at the Medical Field Service School, Carlisle, Pa., on June 4, 1926, is directed to report to the Commanding Officer, Fort Sam Houston, Texas, for duty instead of Fort Sill, Okla., as previously ordered.

Captain James E. Noonan is relieved from duty as student at the Army Veterinary School, Washington, D. C., effective upon termination of treatment at Walter Reed General Hospital and directed to report to the Commanding Officer, Fort Ethan Allen, Vt., for duty instead of Fort Sam Houston, Texas, as previously ordered.

Captain Clifford E. Pickering is relieved from duty at Fort Myer, Virginia, and is assigned to duty as student at the Army Veterinary School, Washington, D. C., upon termination of his present tour of foreign service and upon expiration of his current leave of absence.

Lt. Colonel Jules H. Uri is relieved from duty as attending veterinarian, Boston, Mass., effective about October 10, 1926, and directed to report to the Commanding Officer, Fort Omaha, Nebr., for duty and to the Commanding General, 7th Corps Area, for duty with the Medical Department at his headquarters.

The following officers of the Veterinary Corps are relieved from the stations named and directed to report to the Commandant, Army Veterinary School, Washington, D. C., on August 23, 1926, to pursue a course of instructions:

Captain John W. Miner, Fort McIntosh, Texas

Captain Louis G. Weisman, Fort Sill, Oklahoma

Captain Henry E. Hess, Fort Howard, Maryland

First Lieut. Ralph H. Lewis, Plattsburg Barracks, N. Y.

Second Lieut. Ernest E. Hodgson, Front Royal, Virginia

Second Lieut. Lewis S. Schweizer, M. F. S. S., Carlisle, Pa.

Lt. Colonel Andrew E. Donovan is assigned to Headquarters, 1st Corps Area, Boston, Mass., for duty with the Medical Department and as depot veterinarian, Boston Q. M. I. D., effective upon completion of his present tour of duty in the Panama Canal Department in October, 1926.

Captain Earl F. Long is relieved from duty as Asst. P. M. S. & T., Ohio State University, Columbus, Ohio, effective on or about June 15, 1926, and is

directed to report to the Commandant, The Cavalry School, Fort Riley, Kansas, for duty.

Captain James A. McCallam is relieved from duty at Fort Snelling, Minn., and directed to report to the Commanding Officer, P. & B. Headquarters, Kansas City, Missouri, for duty not later than June 30, 1926.

Captain Patrick H. Hudgins, upon termination of his present course of instruction at the Army Veterinary School, Washington, D. C., and the M. F. S. S., Carlisle Barracks, Pa., on June 4, 1926, is directed to report to the Commanding Officer, Fort Snelling, Minn., for duty instead of Fort Riley, Kansas, as previously ordered.

Reserve Corps

New Acceptances

Captain:

Greissman, Louis..... Nanuet, New York.

First Lieutenants:

Coyner, David Floyd..... 164 Yosemite Ave., Fresno, Calif.

Wooters, Herbert Stanley.. 502 N. Hickory St., Champaign, Ill.

Second Lieutenant:

Hunt, George E..... 301 W. White St., Champaign, Ill.

Promotions

Major John Beckley Lentz, 3 Dana St., Amherst, Mass., promoted to grade of Lt. Colonel.

Captain Roy Marvin Morton, Churdan, Iowa, promoted to grade of Major.

Captain Colenzo Hegel Hoffmire, Continental, Ohio, promoted to grade of Major.

Captain Leon Levi North, 80 E. Brown St., E. Stroudsburg, Penna., promoted to the grade of Major.

First Lieutenant Loyer James Lauraine, P. O. Box 298, Gonzales, Texas, promoted to grade of Captain.

Separations

First Lieutenant Elwin Benjamin Bennett, Jr., 747 Wentworth Ave., Milwaukee, Wisc., resigned.

First Lieutenant George Robert Pittman, Miami, Fla., died.

Changes of Address

Captain Carlton Parks Marcus, from Hotel Rittenhouse, Atlantic City, N. J., to 102 N. Chelsea Ave., Atlantic City, N. J.

First Lieutenant Roy John Hock, from 23 Davenport Road, Tientsin, China, to 228 Racecourse Road, Tientsin, China.

Second Lieutenant Nevin Samuel Craver, from 220 to 234 Holmes St., Youngstown, Ohio.

PRIZE ESSAY AWARDS

At the meeting of the A. V. M. A. held in Portland, it was decided to offer two prizes—first, \$50.00; second, \$25.00—an-nually for the best essays written and submitted by senior veterinary R. O. T. C. students on a subject selected by the Director of the Army Veterinary Corps (see the JOURNAL, October, 1925, page 65).

The subject selected for the 1926 contest, by Lt. Col. J. A. McKinnon, was "The Value of the Veterinary Reserve Officers' Training Corps to the Student and the Nation." The results of the competition have been announced as follows: First prize, \$50.00, awarded to Mr. Harrison J. Seaman, of the College of Veterinary Medicine, Ohio State University; second prize, \$25.00, to Mr. H. F. Wilder, New York State Veterinary College, at Cornell University. Mr. Seaman's essay is published in this issue of the JOURNAL.

OIL OF WINTERGREEN A POISON

Oil of wintergreen, commonly used in salves and liniments, is extremely poisonous when taken internally even in moderate doses. Drs. N. C. Wetzel and J. D. Noutse report that quantities of less than two fluidounces have resulted in death. The toxic effects of this familiar drug, in frequent use in medical practice to allay pain and reduce fever, seem not to have been generally recognized. They are ascribed to the fact that oil of wintergreen, after being taken into the body, undergoes very little chemical destruction, or breaking up into less dangerous components. Editorial comment in the *Journal of the American Medical Association* says that from the standpoint of public welfare, "Access to oil of wintergreen should be made impossible for children and for persons ignorant of its poisonous properties."

—*Science.*

ON THE WAY TO LEXINGTON



A Bluegrass Hemp Field, bordering Elkhorn Creek, in Fayette County.

MISCELLANEOUS

MEET DOCTOR WESTMORELAND

This month we are presenting the likeness of Dr. D. E. Westmoreland, who took office as state veterinarian of Kentucky, July 1, 1926. In addition to the biographical data published in the June issue of the JOURNAL, in connection with the announcement of his appointment as state veterinarian, we should have added that Dr. Westmoreland has been a member of the Kentucky Veterinary Medical Association ever since it was organized in 1910 and that he has served the organization both as



DR. D. E. WESTMORELAND

secretary-treasurer and president. Dr. Westmoreland served in the capacity of assistant state veterinarian of Kentucky for two years and was a member of the Kentucky State Board of Veterinary Medical Examiners. While a member of the Board, he served seven years as secretary-treasurer. We are pleased to be able to publish these additional facts concerning Dr. Westmoreland, whom many veterinarians will have the pleasure of meeting in Lexington next month.

MINNESOTA MEETING AND SHORT COURSE

Secretary Fitch announces that the twenty-eighth semi-annual meeting of the Minnesota State Veterinary Medical Association, and the fifth annual short course for veterinarians, will be held at University Farm, St. Paul, July 22-23, 1926.

The first morning will be devoted to a discussion by Dr. A. V. Storm, Director of Short Courses, University Farm, of short courses and their relation to the veterinarian. Following this Dr. W. L. Boyd, Professor of Veterinary Medicine, University Farm, will discuss handling cases of dystocia, with special reference to cattle. In the afternoon, Dr. H. Lothe, of Waukesha, Wisconsin, will speak on diseases of cattle, with special reference to the genital organs. Dr. H. J. Milks, of the New York State Veterinary College, will discuss important diseases of small animals and their treatment. Dr. H. D. Bergman, of the Iowa State College, will speak on some practical applications in the field of therapeutics. Dr. J. R. Beach, of the University of California, will discuss important diseases of poultry, with special reference to the differential diagnosis of diseases of the head of fowls.

Supper will be served at the cafeteria, following which there will be a business meeting of the Association. At 8:10 p.m., there will be a symposium on tuberculosis and its control. Dr. W. J. Fretz, inspector-in-charge of federal tuberculosis control work in Minnesota, will speak on tuberculin testing. Dr. G. E. Totten, federal inspector-in-charge at the South St. Paul Stock Yards, will discuss autopsy findings in reacting animals. Dr. L. Van Es, of the University of Nebraska, will discuss avian tuberculosis and its relation to tuberculosis of other species of animals. Human tuberculosis and its relation to tuberculosis of animals will be handled by Dr. T. B. Magath, Professor of Pathology, Mayo Foundation, Rochester, Minn. Friday morning, Dr. H. E. Kingman, of the Colorado Agricultural College, will speak on hernia in domestic animals. This will be illustrated. Dr. E. R. Steel, of Grundy Center, Iowa, will discuss business methods, swine diseases and pitfalls. Following this a clinic will be held, which will be in charge of the various specialists in their particular fields. Dr. Kingman will be in charge of the horse clinic; Dr. Steel the swine clinic; Dr. Milks the small animal clinic; Dr. Lothe the cattle clinic; and Dr. Beach the poultry clinic. Interesting cases have been provided in all these fields,

and the veterinarians in attendance will be asked to assist in the various diagnoses and operations.

Entertainment is being provided for the ladies. It is hoped that the members will bring their wives and families with them. Provision is made to house the visiting veterinarians and their families in the dormitories at University Farm where lodgings will be provided. The cafeteria will serve meals as usual.

DR. KALKUS RECEIVES PROMOTION

Dr. J. W. Kalkus was appointed superintendent of the Western Washington Experiment Station, by the Board of Regents of the State College of Washington, effective April 1, 1926. The station under the direction of Dr. Kalkus is a branch station of the State College located in western Washington, for the purpose of conducting experimental work along various lines under conditions which prevail in that part of the State. The staff consists of eight members and an appropriation of \$75,000 is available for the work of the present year. Departments of Agronomy, Horticulture, Plant Pathology, Poultry Husbandry and Veterinary Science are organized here. One of the laboratories is especially well equipped for conducting research work in poultry diseases. Last year the staff for poultry disease research work was increased by the additions of Dr. C. E. Sawyer, of the Kansas State Agricultural College, and Dr. S. S. Worley, a graduate of the State College of Washington. The latter has been very busy with work involved in making the agglutination tests. Dr. Kalkus reports that last year over 48,000 blood samples were tested for bacillary whire diarrhea and this year plans are under way to take care of between 150,000 and 200,000 samples.

DEPRAVED APPETITE IN DAIRY CATTLE

As a means of controlling depraved appetite, as it occurs in dairy cattle, it should be kept in mind that, under farm conditions, where a good grain mixture is included in the ration, the possibility of the occurrence of depraved appetite is minimized. Besides receiving an adequate grain ration, particularly during the summer months, the animals should have access at all times to a mixture of one part common salt and two parts steamed bone meal. When this mixture is first fed, the animals may consume considerable quantities. However,

it is harmless and the animals will not consume more than they need. As soon as the animal's requirements for phosphorus have been satisfied, they will consume only moderate amounts. Caution should be taken in selecting the quality of steamed bone meal used. The bone meal should be finely ground and comparatively free from odor, else it may be impossible to induce the animals to eat the mixture. The salt and bone meal should be fed under an open shed, or where it will have protection from the weather; otherwise the rain will cause considerable loss by leaching away the salt.

(*C. F. Huffman and George E. Taylor, Dairy Section, Michigan State College., Mich. Quar. Bul., May, 1926.*)

PUBLICATIONS RECEIVED

- Report of the New York State Veterinary College at Cornell University for the Year 1924-1925. Albany, N. Y., 1926. pp. 238. Illustrated.
- The Register of Veterinary Surgeons, 1926. Royal College of Veterinary Surgeons, London. January 1, 1926. pp. 378.
- Ninth Annual Report of the Hog Cholera Work in Maryland, 1925. Local office, Bureau of Animal Industry, United States Department of Agriculture, College Park, Md., January 20, 1926. I. K. Atherton. pp. 6.
- Nuttall's Death Camas (*Zygadenus Nuttallii*) as a Poisonous Plant. C. Dwight Marsh. (U. S. Dept. Agr. Bul. 1376, Feb., 1926, pp. 14, figs. 5.)
- Investigation of Spirocheticidal Agents. Research Bulletin No. 1, Parke, Davis & Company, Detroit, Mich. pp. 11.
- Catalogue of Morgan Horses. U. S. Morgan Horse Farm, Middlebury, Vt., 1925. pp. 21. Illustrated.
- Horse Association of America. Proceedings of the Sixth Annual Meeting, Chicago, Ill., December 2, 1925. pp. 28. Illustrated.
- Annual Report of Proceedings under the Diseases of Animals Acts for the Year 1924. Ministry of Agriculture and Fisheries, London. pp. 70.
- Scientific Reports from the Government Institute for Infectious Diseases. The Tokyo Imperial University, Tokyo, Japan, 1924. Prof. Mataro Nagayo. Vol. iii, pp. 241.
- Italian Pharmaceutical Association. Official Year Book and Guide. New York, 1925. pp. 80.
- University of Pennsylvania Bulletin. School of Veterinary Medicine, Announcement 1926-1927, 42nd Annual Session. Philadelphia, Pa., January 23, 1926. pp. 43.
- University of Pennsylvania Bulletin. Graduate Courses in Veterinary Medicine, Preliminary Announcement, 1926. Philadelphia, Pa., March 13, 1926. pp. 11.
- The Tattoo Method of Marking Hogs and Its Use. F. E. Murray. (U. S. Dept. Agr. Mis. Cir. 57, Mar., 1926. figs. 6.)
- Annual Report of the Surgeon General U. S. Army, 1925. Annual Reports, War Dept., fiscal year ended June 30, 1925. Washington, D. C. pp. 483.
- Announcement of the Georgia State College of Agriculture for the Session 1926-27, Athens, Ga. Vol. xiv, Bul. 315, pp. 128. Illustrated.
- Infectious Abortion in Cattle. Bul. 137, Storrs Agricultural Experiment Station, Storrs, Conn., January, 1926. Leo F. Rettger, Jas. G. McAlpine, Geo. C. White and Robt. E. Johnson. pp. 17.

COMMUNICATIONS

CHINA NEEDS VETERINARY MEDICINE

TO THE EDITOR:

Causes of the world unrest and war are many, but one of the most important factors is the question of food. Both the vegetable and animal foods are equally indispensable for man's health. The world ought to produce more meat products, not only for the rich, but also for the poor. A healthy animal produces healthy meat, and wholesome meat means health for the consumers. Who takes care of man's health? It is the physician's duty. Who looks after the animal's health? The veterinarians are responsible for it. If diseased meat makes a person sick, would it not be advisable for the veterinarians to condemn the carcass beforehand? From the patient's standpoint, prevention of disease is surely better than cure. The services rendered by physicians and veterinarians mean health in its absolute sense.

Meat-producing animals in China are mostly scavengers. Anything which yields to the pressure of the teeth and can be swallowed without much difficulty is the feed for animals. It is especially true of the swine which are almost blind, when it comes to discriminating in the choice of feed. Too, few people know that certain diseases of animals are communicable to man. Diseased meats are sold in the market without being subject to any inspection. People sometimes say that a certain person has been very sick and is dead. The story they tell is that the deceased had serious stomach trouble, after going to a certain restaurant. Could that be due to the toxic products from the diseased meat? No one cares to investigate.

Consumption of milk has been greatly encouraged by its exaggerated nutritive value in recent years. Two or three emaciated cows, kept in a small, dark, dirty and poorly ventilated barn, produce milk both poor in quality and insufficient in quantity. The addition of water is one of the common forms of adulteration. Under such an insanitary condition, the danger of tuberculosis in man will be directly proportional to the increasing demand of milk. America wages war against tuberculosis and China wishes that the American veterinarians might take part in the fight against tuberculosis in China.

In recent years, a number of people and agricultural institutions in China introduced pure-bred animals directly from America and they know the importance of veterinary service. The difficulty is that the institutions do not have enough funds to employ veterinary professors. The introduction of such an important science in China needs a big budget. America has done her part in the contribution of a generous sum of money to build hospitals in China. Mr. John D. Rockefeller's medical foundation in Peking is the best illustration. For science, health, industry and international friendship, the American Veterinary Medical Association—a noble organization—should respond to the call for help. As to the fund, I wish to suggest that the American share of the returned Boxer indemnity be used to promote veterinary science in China. I am sure that the American Veterinary Medical Association has the fighting spirit and will second my motion.

C. C. WANG.

Peking, China, May 14, 1926.

Lexington! Let's Go!

AS PREDICTED

TO THE EDITOR:

The editorial, "Mineral Mixtures Again," which appeared in the May issue of the JOURNAL, recalled to my mind an incident which happened a little while back. One morning I received a call from a farmer living a considerable distance from my immediate territory. I had never been called by this farmer before and I knew there was another veterinarian much nearer to him than myself. I mentioned this fact and suggested that he call this other veterinarian, because it would be impossible for me to go immediately. He insisted upon my coming to see his horse, which, fortunately, was not seriously ill.

Upon arriving at his place well towards evening, I remarked that I was at a loss to know why he had sent for me, with another veterinarian close by. He proceeded to tell me. He stated that he had no reason to question the other veterinarian's ability, but he had had a very unsatisfactory business deal with him and did not care to employ him again. A little further questioning brought out the information that the business deal referred to was a mineral mixture transaction. It recalled to my mind the prophecy which you made in an editorial on the same subject,

published in the JOURNAL about a year ago. I thought you might be interested in knowing that your prophecy came true in at least one case.

F. E. STILES.

Battle Creek, Mich., May 26, 1926.

In the Heart of the Blue Grass
August 17-18-19-20, 1926

NOT A FINANCIER

TO THE EDITOR:

Re your editorial, "Mineral Mixtures Again," in the current number of the JOURNAL, wish to congratulate you because of your ability to write such an article, besides, it is true in every word, and is the whole story in a "nut-shell." It is only a few weeks since a smooth-voiced salesman spent considerable time with me, trying to convince me that it was to my financial well-being, also my *duty* to become a salesman or booster, or both, for his firm at 25 per cent commission on all sales, etc., and am happy to say that I was not enough of a financier, or of a quack, to swallow the bait offered.

A. J. SAVAGE.

Colorado Springs, Colo., May 23, 1926.

Lexington! Let's Go!

FOOT-AND-MOUTH DISEASE

TO THE EDITOR:

In the June number of the JOURNAL there is a notice to the effect that foot-and-mouth disease (aphthous fever) was reported in southern Mexico.

Some two years ago, according to reports received, it was evident that foot-and-mouth disease was working its way steadily up the west coast of South America and had reached Peru and Ecuador. I called attention to this fact at the meeting of the United States Live Stock Sanitary Association, some two or three years ago, and warned the live stock sanitary authorities that it would be necessary to watch carefully to guard against the importation of this serious disease from Latin-American countries.

A number of Latin-American countries do not have the facilities for enforcing quarantine regulations, nor do they have an efficient live stock sanitary organization, although many of them have extensive investments in live stock, particularly cattle. Foot-and-mouth disease, when it once becomes established in these countries, will not only be difficult to eradicate and cause a tremendous loss to the live stock industry, but will seriously interfere with commerce.

N. S. MAYO.

Chicago, Ill., June 10, 1926.

Yes—Suh! Lexington, Ky., Aug. 17-18-19-20, 1926

ORGANISMS IDENTICAL

TO THE EDITOR:

After mailing the manuscript of my article entitled, "*Bacillus Paratyphosus B Infection of Canary Birds*," published in the June issue of the JOURNAL, there appeared an article in the JOURNAL entitled "*B. Aertrycke Infection in Canary Birds and Parrots*," by Dr. F. R. Beaudette, New Brunswick, N. J. The latter kindly sent me positive *B. aertrycke* serum and subcultures of the organism isolated by him and a comparative study proved his organism and the one isolated by me to be identical. The title of the paper should therefore read, "*B. Aertrycke Infection of Canary Birds*." The close relationship of the *B. paratyphosus B* and the *B. aertrycke* is manifested in this work.

MALCOLM J. HARKINS

Philadelphia, Pa., June 11, 1926.

In the Heart of the Blue Grass
August 17-18-19-20, 1926

HURRAH FOR OKLAHOMA

TO THE EDITOR:

The Oklahoma Veterinary Medical Association, as a group, is planning to attend the A.V.M.A. meeting in a much larger way than we have ever attended before. The officers believe that we will postpone our regular semi-annual summer meeting and lend our support toward going to Lexington.

C. H. McELROY.

Secretary Okla. Vet. Med. Asso.

Stillwater, Okla., June 11, 1926.

EDITORIAL COMMENDED**TO THE EDITOR:**

I have been on the point of writing you for some time to congratulate you on the editorial which appeared in the May number of the JOURNAL, on selling mineral feeds. Your stand on this matter is absolutely sound. It will take some time for this to dawn upon some of our practitioners, but I think all of us, who have faith in the human race, believe that this will ultimately come. Editorials of this character require a rigid back bone and good common sense, and I wish to add my mite in commending you upon this stand.

C. P. FITCH.

*St. Paul, Minn., June 8, 1926.***AN INVITATION****TO THE EDITOR:**

Veterinarians, their families and friends, who contemplate attending the Sesqui-Centennial, are most cordially invited, while in Philadelphia, to pay a visit to the laboratories of the Pennsylvania Bureau of Animal Industry, located at 39th Street and Woodland Avenue; also to visit the Bureau's central offices and animal and poultry disease research farm, located at Harrisburg.

The live stock show in connection with the Sesqui will be held September 12th to 19th inclusive and will be an added attraction for veterinarians. The undersigned, as official veterinarian for the show, extends to veterinarians a special invitation to attend the Sesqui Live Stock Show.

We would like you to see what the Pennsylvania Bureau of Animal Industry is doing for the profession and the live stock and poultry industries in the way of studying, preventing and controlling transmissible animal and poultry diseases.

A truly hearty welcome will be accorded those who may find it suitable to pay us a visit.

T. E. MUNCE,
*State Veterinarian.**Harrisburg, Pa., June 11, 1926.*

The paper by Dr. S. E. Bruner, "Present Status and Future Outlook of the Tuberculin Test," published in the April issue of the JOURNAL, was reproduced in full in the May issue of the *Goat World*.

COMMENCEMENTS

ALABAMA POLYTECHNIC INSTITUTE

Commencement exercises at the Alabama Polytechnic Institute were held on May 18, 1926. In the College of Veterinary Medicine degrees were conferred upon four members of the graduating class, as follows:

C. Helms
R. G. Isbell

C. H. Johnson
J. G. McKee

J. C. Melvin failed to finish at the end of the regular term, on account of having had an attack of appendicitis. He will finish at the end of the summer school and will probably return to his native state, Kentucky. Dr. McKee has returned to Indiana. The other graduates are expected to locate in Alabama.

TEXAS A. & M. COLLEGE

At the commencement exercises of the Texas Agricultural and Mechanical College, held June 1, 1926, the degree of Doctor of Veterinary Medicine was conferred upon the following graduates:

P. P. Boriskie
P. W. Burns

F. P. Jaggi.
J. D. Jones

Beginning September 1, 1926, a six-year combination course of Veterinary Medicine and Animal Husbandry will be offered by the College.

KANSAS STATE AGRICULTURAL COLLEGE

The sixty-third annual commencement exercises of the Kansas State Agricultural College were held at Manhattan, June 3, 1926. In the Division of Veterinary Medicine, the degree of Doctor of Veterinary Medicine was conferred upon the following:

Junius G. Berthelson
Philip Ray Carter
Victor C. Hurtig
Charles B. Krone

Cornelius Henry Mobley
Wayne S. O'Neal
Oliver Edgar Walgren
Walter Wisnicky

COLORADO AGRICULTURAL COLLEGE

The commencement exercises of the Colorado Agricultural College were held on June 3, 1926. In the Division of Veterinary Medicine, degrees were conferred upon eleven members of the graduating class, as follows:

Walter E. Brandner
 Wallace E. Brown
 Eugene B. Foster
 Cloyd L. Gooding
 Conrad H. Hare

Alfred C. Tucker

Paul S. Moe
 J. Lloyd Owens
 Russell A. Paige
 Milton R. Sharp
 Harry E. Shepherd

CORNELL UNIVERSITY

Commencement exercises at Cornell University were held June 14, 1926. The degree of Doctor of Veterinary Medicine was conferred upon the following:

John Bacon
 Robert Hine Bardwell
 Clarence Edward Bolton
 John Elliott Crawford
 Arthur Calwell Davidson
 Andre Ray DeMott
 William Albert Dennis
 Joseph Branin Engle
 Vrouir Ghazarian

Alexander Zeissig

Laurence William Goodman
 Edward Martin Kennelly
 Walter Rohrer Miller
 Mark Loren Morris
 Peter Olafson
 Francis Irving Reed
 Stevens Giddings Tabor
 Roger Couvelle ter Kuile
 Horace Frederick Wilder

On February 3, 1926 the degree was conferred on:

John Jacob Peterson

The following prizes were awarded for the academic year 1925-26:

The Horace K. White Prizes:

First Prize.....	Alexander Zeissig
Second Prize.....	Robert Hine Bardwell

The Holdingworth Honorarium.....

Peter Olafson

The Jane Miller Prizes:

First Prize.....	Arthur Trayford
Second Prize.....	Warren Fowler Hoag

The James Gordon Bennett Prize.....

Andre Ray DeMott

The Anne Besse Prize.....

Robert Hine Bardwell

UNIVERSITY OF PENNSYLVANIA

At the commencement exercises of the University of Pennsylvania held June 16, 1926, the degree of Doctor of Veterinary Medicine was conferred upon the following:

Carl Lytle Briggs
 Harry William Herriott
 George Herman Kinemond
 Robert George Little
 William Sheeler Miller

Josiah Carpenter Robbins
 John Allyn Rogers
 Gerry Birger Schnelle
 James Kennedy Strockbine
 Franklin Swiggett Wharton

Harry William Herriott was awarded the J. B. Lippincott Prize of \$100 for the highest general average in examinations.

John Allyn Rogers was awarded the T. E. Muncey Prize of \$25 for the highest average in the courses in Animal Industry.

The Jeannette Blair Prize of \$50 for the best work in the small Animal Clinic was awarded to George Herman Kinemond.

The class of 1926 has given a sum of money to the trustees of the University to establish the Anatomy Prize of the Class of 1926. The prize is to be a medal to be awarded to the sophomore veterinary student who shall have obtained the highest average grades during the two years in the course of anatomy. (The money is to be invested by the trustees and the first award will be made in about two years.)

The 1914 Class Medal is awarded to the member of the freshman class who attains the highest general average for the year.

GEORGIA STATE COLLEGE OF AGRICULTURE

At the 125th annual Commencement of the University of Georgia, held June 16, 1926, there were graduated from the Division of Veterinary Medicine the following students:

Douglass LaFayette Davis	Alvin Lee Odom
Allie Bee Griner	Harry Poe
George Raiford Hatfield	Ezekial Fred Thomas

The commencement exercises were held in Woodruff Hall, this being the third occasion in the past 125 years that the historic old chapel was not used for this purpose. The speaker of the day was the Hon. Herbert Hoover, and his masterly address upon the mutual dependence of the State and its State University, held the close attention of the large audience.

One of the graduates has accepted a full-time salaried position with the state veterinarian of Georgia; two have accepted positions as part-time city food inspectors with privilege of practice; three will give their attention wholly to general practice.

VISITORS AT THE JOURNAL OFFICE

An unusually large number of veterinarians have called at the JOURNAL office, on various missions, during recent months. Among those to call were the following: Dr. Albert R. Miller, Lake Park, Iowa; Dr. H. O. Boston, New York, N. Y.; Dr. L. Enos Day, Chicago, Ill.; Dr. B. T. Woodward, Washington, D. C.; Dr. J. V. Lacroix, Evanston, Ill.; Dr. J. J. Law, Caro, Mich.; Dr. J. W. G. Hansen, Greenville, Mich.; Dr. J. H. Lenfestey, Lyons, Ohio.; Dr. B. J. Killham, Lansing, Mich.; Drs. Ward Giltner and E. K. Sales, East Lansing, Mich.; Drs. Joseph Hawkins, E. P. Schaffter, A. S. Schlingman, E. E. Patterson, J. E. Patterson, H. H. Sparhawk, Warren P. S. Hall, John Hoberg, Frank Bates, Max Gordon, James O. McCoy and L. R. Stauffer, all of Detroit, Mich.

ASSOCIATION MEETINGS

POULTRY SHORT COURSE FOR OKLAHOMA VETERINARIANS

The veterinarians of Oklahoma met at Stillwater for their first annual poultry short course, March 11-12-13, 1926. Considering that this was the first meeting of this kind to be held, the attendance was excellent and much good was gained by those who were present.

Dr. W. R. Hinshaw, of the Kansas State Agricultural College, was on the program the second and third days and discussed all phases of poultry diseases. Dr. Hinshaw handled his subjects well and the veterinarians of Oklahoma want to congratulate Kansas on having such an able scientist in their State.

The first day "Incubation and Brooder Chick Management" was presented by Mr. Charles Upp. "The Anatomy and Physiology of the Fowl" was discussed by Dr. H. W. Orr. "Parasites of Poultry" was the subject assigned to Dr. E. E. Harnden. The presentation of these subjects was followed by a round-table discussion. Then the visiting veterinarians were given a sight-seeing trip over the campus of the Oklahoma A. & M. College.

On the following day "Poultry Feeding" was discussed by Mr. R. B. Thompson, and Mr. Robert Penquet gave a demonstration of poultry culling. On the third day Mr. R. B. Thompson discussed the various breeds of poultry and Dr. C. H. McElroy concluded the program with a talk on "Hygiene and Sanitation."

At the business session of the Oklahoma State Veterinary Medical Association, held the afternoon of the first day, a number of resolutions were adopted, including the following:

"We, the attending members of the Oklahoma State Veterinary Medical Association resolve:

"That it is fitting and proper that we at this time express sincere appreciation for the splendid hospitality and the highly instructive poultry program extended to us by the Veterinary Department of the Oklahoma A. & M. College; to Dr. Knapp, president, and to the very earnest efforts on the part of Drs. McElroy, Orr and Harnden.

"We resolve, therefore, to do all in our power to promote the very best interests of the ideals of this institution, assuring the Veterinary Department that it is our keen and sincere desire to return for their short course during the coming year.

"Finally, that in order to further the execution of the approved resolutions, a joint committee, consisting of the Executive Committee and the chairman of the Legislative Resolution Committee, be authorized to meet with the president of our State Board of Agriculture, with the inspector-in-charge of the Bureau

of Animal Industry, and with the Extension and Veterinary departments of the A. & M. College, to discuss matters pertaining to the practice of veterinary medicine, create a better understanding, maintain harmony, etc.; that this committee make a written report to the Association at least once a year; and that at no time shall less than three members constitute this authority."

President Barber announced that Dr. C. R. Walter, of Tulsa, would represent the Oklahoma State Veterinary Medical Association at the meeting of the A.V.M.A., at Lexington, in August. The Association has adopted the following slogan:

"Let Veterinary Service Make Your Meat and Milk Safe."

C. H. McELROY, *Secretary*

Lexington! Let's Go!

NORTHEASTERN INDIANA VETERINARY MEDICAL ASSOCIATION

The Northeastern Indiana Veterinary Medical Association met in Huntington, Ind., March 29, 1926. The meeting was held in the Chamber of Commerce rooms. It wound up with a banquet at the Hotel La Fontaine, after which the veterinarians and their wives attended the dog show held by the Northern Indiana Kennel Club.

The following subjects were discussed by the members: "Deficiency Diseases," presented by Dr. E. E. Clore, of Greenwood; "Horses," by Dr. T. A. Sigler, of Greencastle; "Matters of Interest to Indiana Veterinarians," by Dr. R. E. Julien, state veterinarian, of Indianapolis.

Yes—Suh! Lexington, Ky., Aug. 17-18-19-20, 1926

NATIONAL ASSOCIATION OF BUREAU OF ANIMAL INDUSTRY VETERINARIANS—MISSISSIPPI VALLEY DIVISION

The regular meeting of the Mississippi Valley Division was held in Dr. J. W. Joss' office, Federal Bldg., East St. Louis, Ill., April 17, 1926, at 8 p. m.

The meeting was called to order by Dr. R. E. Surring, president. The minutes of the previous meeting were read and approved. Various matters were discussed, especially in regard to retirement, transfers and the betterment of the Service.

Dr. G. H. Bruns read a paper and told of his experiences at the Pure Food Show, at the Coliseum, in St. Louis, Mo.

Dr. J. S. Jenison, who has been transferred to Omaha, Nebr., as inspector-in-charge, gave a farewell talk, in which he reviewed

the history of meat inspection. Dr. Jenison's talk was appreciated by all present and was followed by a round-table discussion, each veterinarian giving a little talk and mentioning Dr. Jenison's grand character and the splendid way in which he treated his men and handled the work at National Stock Yards, Ill.

It was voiced by all present that they were sorry to see Dr. Jenison go, but since duty called, they wished him success, health and happiness at his new station.

R. E. SURING, *President.*

Lexington! Let's Go!

MCLEAN COUNTY VETERINARY ASSOCIATION

The regular spring meeting of the McLean County Veterinary Association was held, April 29, 1926, at Bloomington, Ill., in the rooms of the Association of Commerce. There was an attendance of forty-four, of whom thirty-seven were practitioners.

The McLean County system of swine sanitation was discussed by Mr. J. W. Connelly, who was sent to McLean County at the inauguration of the work. Mr. Connelly is the one who has had actual charge of the work on the various farms, during the time that the demonstration has been in progress. He expressed his appreciation for the cooperation given him by the local veterinarians and then emphasized the importance of veterinary service in connection with the work. The meeting had been arranged largely as a farewell to Mr. Connelly, in order to show the high regard our members have for him. The Association wishes him the same degree of success in his new location that has attended his efforts here.

Dr. J. G. Blum, of Normal, reviewed recent reports on baby-pig vaccination. After a lively discussion it was voted unanimously that the vaccination of suckling pigs had not proven a practical or safe procedure in the experience of the veterinarians present.

"Sheep Practice" was discussed by Dr. E. H. Marquardt, of Bloomington. "Tuberculosis in Poultry" was discussed by Dr. C. B. White, of Stanford; "Poultry Farm Problems," by L. N. Morin, of McLean; "Bacillary White Diarrhea," by Dr. W. H. Welch, of Lexington.

Dr. R. E. Kluck, president of the Illinois State Veterinary Medical Association, gave a very comprehensive outline of the

work which the Association hopes to accomplish during the year. Dr. F. R. Whipple, of Peoria, reported on the postgraduate course for small animal practitioners, held at Evanston, Dr. A. T. Peters, of Peoria, discussed the changing conditions confronting practitioners and advised all veterinarians to equip themselves to meet them.

After a delightful supper at the Y.W.C.A., where we were joined by our wives and friends, Mr. H. B. Patten, secretary of the Illinois Poultry Produce Association, addressed us on the poultry industry, its magnitude and the opportunity offered veterinarians for increasing poultry practice. Mr. Patten asked for the cooperation of the veterinarians in correcting some of the problems confronting poultry dealers.

This meeting attracted the largest attendance and the greatest interest of any regular meeting ever held by the Association.

J. S. KOEN, *Secretary.*

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NORTH CENTRAL OHIO VETERINARY ASSOCIATION

The third annual meeting of the North Central Ohio Veterinary Association was held at Ashland, Ohio, May 5, 1926. Following a business session in the morning and a clinic in the afternoon, at the hospital of Drs. Ropp and Dannley, the following officers were elected: President, Dr. D. F. Wise, Medina; vice-president, Dr. G. R. Dannley, Ashland; secretary, Dr. C. C. Wadsworth, Mansfield; treasurer, Dr. H. B. Ropp, Ashland.

Yes—Suh! Lexington, Ky., Aug. 17-18-19-20, 1926

**NORTHEASTERN PENNSYLVANIA VETERINARY
MEDICAL CLUB**

The Northeastern Pennsylvania Veterinary Medical Club, composed of veterinarians of this part of the State, met at Hotel Casey, Scranton, Pa., May 12, 1926. Dr. C. J. Marshall, of the University of Pennsylvania, gave a lecture on "Diseases of the Udder and Their Treatment." Dr. Marshall brought out many new points of interest in this connection, and the subject was thoroughly discussed by the members present. Dr. Marshall brought out several points that he has met in his prac-

tice and the difficulties which he has experienced in the different methods of treatment. The local veterinarians also gave their experiences under different conditions.

This is one of a series of lectures which is being given by the University of Pennsylvania Veterinary Extension School for the veterinarians of this section, in connection with the state veterinarian and his representatives. Some of the members of the Pennsylvania Bureau of Animal Industry were present and spoke on the different conditions that arise with them, while on the daily duties of testing cattle.

THOS. D. JAMES, *Secretary.*

Lexington! Let's Go!

MISSOURI VETERINARY MEDICAL ASSOCIATION

The Missouri Veterinary Medical Association assembled May 18, 1926, at the Hotel Claridge, St. Louis, for the thirty-fifth annual meeting. More than 100 veterinarians, ladies and guests were present. A program of unusual fullness necessitated using the evening of the 18th and practically all of the two days following to complete same.

Points of note in the program were the general interest in the poultry subjects presented on the first day, and the return of swine topics to the program for their share of discussion, the latter having been given little attention in recent meetings. Small animal diseases received good attention and the meeting seemed to prove that the practitioner has not forgotten that the horse exists, as many subjects were presented dealing with the horse.

Some of the guests present from out of State were: Dr. H. Preston Hoskins, secretary-editor of the A. V. M. A.; Dr. Robert Graham, professor of animal pathology, University of Illinois; Dr. N. S. Mayo, formerly chief of the Bureau of Animal Industry, Cuba; Dr. R. C. Julien, state veterinarian of Indiana; Dr. F. A. Laird, state veterinarian of Illinois; Dr. J. S. Barber, of Princeton, Iowa; and Drs. Holmes, Dickerson, Bott and Rives, all of Illinois.

The afternoon of the 18th was spent visiting the St. Louis Zoological Gardens, under the able leadership of Dr. R. A. Kammerer, veterinarian of the Zoo, and it was highly enjoyed by all. Even the rain aided in making the temperature agreeable.

The afternoon of the second day was spent on the boat *City of St. Louis* in a down-stream trip, during which the program was carried out as per schedule, returning to the dock at 5:00 p. m. At 7:00 p. m. the regular annual dinner was held, which was presided over by Col. Robt. E. Lee, dean of toastmasters. Everyone had a most enjoyable evening.

Officers for the ensuing year were elected as follows: Dr. E. A. Shikles, Dearborn, president; Dr. E. S. Carter, Springfield, vice-president; Dr. J. D. Ray, Kansas City, secretary-treasurer; Dr. R. C. Moore, St. Joseph, trustee, District No. 1.

Dr. A. T. Kinsley, of Kansas City, was selected to represent the Missouri veterinarians at the conference being arranged by the A. V. M. A., the evening before the opening date of the Lexington meeting.

FRED C. CATER, *Secretary.*

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MASSACHUSETTS VETERINARY ASSOCIATION

The Massachusetts Veterinary Association met at the Massachusetts Agricultural College, Amherst, May 21, 1926. This meeting was made possible through the Short Course Service of the College in cooperation with the Department of Veterinary Science and consisted of an all-day conference on infectious abortion of cattle.

It was felt that in the different methods of control which were discussed the differences of opinion which have apparently existed were actually more imaginary than real. In other words, there are herds in which sanitary control measures alone are applicable and there are other instances where biological products appear to offer the only means of rendering assistance to the farmer. Many valuable points were brought out in the discussions and the meeting was voted by the seventy-five members present to have been one of much benefit and practical assistance to the veterinarian in the field.

Dr. H. L. Gilman, of the New York State Veterinary College, presented "Studies of Genital Diseases of Cattle with Special Reference to the Etiology and Pathology of Infectious Abortion," at the morning session. After luncheon the program was resumed and Dr. M. F. Barnes, of the Pennsylvania Bureau of Animal

ASSOCIATION NEWS

Industry, discussed "Diagnosis of Infectious Abortion with Special Reference to Control. (Laboratory and Clinical Diagnoses)." Dr. H. W. Jakeman, of Pitman-Moore Company, then presented "The Use of Biological Products in the Control of Infectious Abortion of Cattle." The program was concluded with an address by Dr. G. E. Corwin, Deputy Commissioner of Domestic Animals, Hartford, Conn., "Some Practical Experiences with Biological Products in the Control of Infectious Abortion of Cattle."

During the day the pathological laboratory in the Department of Veterinary Science of the College was open for inspection by the visiting veterinarians. Dr. G. E. Gage and Mr. Frederick Rowley demonstrated laboratory methods used in the bacteriological and serological diagnosis of infectious abortion.

The June meeting of the Association was in the form of an outing at the Walker-Gordon Laboratory Company's farm at Needham, Mass., on June 16.

HARRY W. JAKEMAN, *Secretary.*

Yes—Suh! Lexington, Ky., Aug. 17-18-19-20, 1926

SOUTHWESTERN MICHIGAN VETERINARY MEDICAL ASSOCIATION

The semi-annual meeting of the Southwestern Michigan Veterinary Medical Association was held at Paw Paw, Mich., in the high school auditorium, May 20, 1926. A record attendance and an excellent program contributed to the success of the meeting. Among those who participated in the program were: Drs. Ward Giltner and E. T. Hallman, of Michigan State College; Dr. B. J. Killham, state veterinarian; and Dr. George McCollister, B. A. I. veterinarian stationed at Kalamazoo. A splendid banquet was served at the Hotel Dyckman, at which Dr. Killham acted as toastmaster. Dr. W. J. Johnson, of Paw Paw, is president and Dr. John A. Schaefer, of Bangor, is secretary of this progressive association.

Lexington! Let's Go!

COLORADO VETERINARY MEDICAL ASSOCIATION

The regular semi-annual meeting of the Colorado Veterinary Medical Association was held at the State Agricultural College, Fort Collins, Colorado, May 24-25, 1926. Although the attend-

ance was somewhat disappointing, the program was exceptionally good. Dr. H. P. Scott, president of the Association, presided.

The first paper was a report by Drs. W. M. Decker and A. G. Wadleigh, of Monte Vista, on the loss of 64 head of calves out of a herd of 84 head, following vaccination and dehorning. The calves died as a result of persistent hemorrhage, the result of their having been fed for some time on sweet clover hay. Blood drawn from a muley, which had not been operated on but had had the same diet, failed to clot after several days. It was the opinion of the authors that the hay was not damaged or molded and that no evidence of harmful effects other than those due to non-coagulability of the blood existed.

Dr. M. E. Spratlin, of Littleton, gave an interesting and instructive paper on "Bovine Mastitis." He believes mastitis in dairy cows to be the most costly disease of these animals, from the standpoint of monetary loss. He considers a bacteriological examination important in determining the type of mastitis to be treated. Simple garget is a physiological condition largely, and yields to massage and cold applications. In the more serious infections, an ounce of a 2 per cent solution of mercurochrome, injected into each quarter, and the local application of cold packs has given good results.

Professor C. I. Bray, of the Colorado Agricultural College, spoke on the "Nutrition of the Dairy Cow." Many of the newer discoveries in the field of nutrition were mentioned. The inadequacy of short-time experiments was stressed and attention called to effects of malnutrition showing up only after several generations of faulty feeding. Mineral metabolism and the proper balance in mineral dietaries was also emphasized. Alfalfa was especially commended as a most efficient feed in correcting several types of deficiency.

Dr. E. J. Frick, of Manhattan, Kansas, next discussed "Sterility in Mares." He paid especial attention to the formation of large ovarian cysts and the comparative ease with which such cysts can be emptied, by tapping them through the vaginal wall, directing the ovary by use of one hand in the rectum. A demonstration of the method was later made by the speaker.

Dr. C. P. Lamb, of Brush, reported a number of cases of forage poisoning in horses from undetermined causes. These cases were highly fatal, the most acute ones terminating in death in from 24 to 36 hours; others developing more or less paralysis and lasting from one to five days.

"*Digestive Disorders in Cattle*" was the title of a paper by Dr. George H. Carr, of Brighton. He reports that 37 per cent of his bovine cases are in this group. Among the unusual cases reported were those resulting from the ingestion of weed seed around an ensilage-cutter and arsenical poisoning from grasshopper poison; also several cases of malnutrition due to dental defects.

Dr. R. G. Gustavson, of the Department of Biological Chemistry, University of Denver, gave a most interesting illustrated talk on the "*Present Status of the Female Sex Hormone*." The speaker reported exhaustive chemical studies made by himself and earlier investigators, in efforts to isolate and analyze chemically the sex hormone. He has found it to be of a lipoid character, thermo-stable and consisting entirely of carbon, hydrogen and oxygen. It is a yellowish, viscous fluid, with a slight turpentine-like odor, and is obtainable from the follicle fluid, corpus luteum, placenta and even the blood of animals in estrus. He believes that there are other sex hormones produced but was able to demonstrate marked effects upon the uterine development and movements, as well as upon functional changes in the other female organs.

Dr. E. J. Frick gave a second paper on "*Coursing Hounds, with Special Reference to Greyhounds*." He stated that the dog industry of America represents an investment of approximately \$100,000,000 and called attention to the 400 dog shows, 800 dog clubs, and the dozen or more publications devoted to dogs in this country. Technical treatment of the coursing regulations and manner of conducting meets, together with surprising statements regarding the stakes and financial outlay, were given. The disorders and accidents peculiar to coursing dogs and methods of treatment were ably given.

Dr. A. T. Kinsley, of Kansas City, conducted a round-table discussion of swine diseases. Diagnosis and demonstration of lesions in several pigs as well as a very practical discussion of breeding practices and general hygiene were presented.

The clinical program occupied nearly the whole of the second day. Dr. H. E. Kingman, who was in charge, had assembled a splendid assortment of cases. The list included a herniotomy in a bull, testicular transplantation, roaring operation, bog spavin treatment and several other cases. Drs. Frick, Farquharson, Scott, and others presented cases.

A picnic luncheon and a baseball game between the Colorado University and Colorado Aggies were enjoyable features of the meeting.

The next meeting will be held in Denver, the latter part of January.

R. F. BOURNE, *Secretary.*

Yes—Suh! Lexington, Ky., Aug. 17-18-19-20, 1926

SOUTHEASTERN MICHIGAN VETERINARY MEDICAL ASSOCIATION

The annual meeting of the Southeastern Michigan Veterinary Medical Association was held at the Detroit Department of Health headquarters, June 2, 1926. A dinner served at six o'clock preceded the meeting, which was called to order by President Sparhawk, at 7:30. Roll-call showed twenty-three members in attendance. On motion, the reading of the minutes of the previous meeting was dispensed with and the report published in the JOURNAL of the A.V.M.A. accepted in lieu thereof.

The program was devoted to a discussion of recent developments in the field of small animal practice. The subject was introduced by Dr. E. K. Sales, of Michigan State College, who proceeded to explain the methods which he had found to be the most satisfactory for handling the common diseases of small animals. Dr. Sales described treatment for various skin diseases, paying particular attention to sarcoptic and demodectic mange, eczema and acidosis. Dr. J. E. Patterson, of Detroit, took up the discussion and emphasized the importance of cleanliness in the small animal hospital. He also reviewed the various uses to which the X-ray may be put. Dr. Patterson reported that he had found *izal* of considerable value in treatment of skin diseases. He also reported that he was very rapidly coming to the opinion that very few medicinal agents are of any great value in the treatment of canine distemper. The subject was continued by Dr. George W. Rawson, of Detroit, who reviewed recent investigations in the field of parasitic diseases, as well as canine distemper.

Dr. H. P. Faber, of Mitchell, South Dakota, was a visitor at the meeting. Dr. Faber happened to be in Detroit on the day of the meeting and took advantage of the opportunity to attend. He related some of his experiences encountered in an automobile tour of the country, which he expected would take him through

every state in the Union before he reached home. By the time he arrived in Detroit, he had put 14,000 miles behind him on the trip.

At the business session, the Secretary reported the recent death of the wife of Dr. H. T. Carpenter, past president of the Association. The action of the Secretary in sending flowers in the name of the Association was approved and the Secretary was instructed to write a letter of condolence to Dr. Carpenter, expressing the sympathy of the members of the Association.

The attention of the members was directed to the fact that a vacancy existed in the position of Chief of the Division of Food and Dairy Inspection in the Detroit Department of Health. After considerable discussion, a resolution was adopted favoring the appointment of a veterinarian to the position.

The Secretary directed attention to the fact that Detroit was about the only large city in the country where the local veterinary association did not hold monthly meetings. Attention was also directed to the fact that there were over one hundred veterinarians in the three counties served by the Association. On motion duly seconded and carried, it was decided to hold monthly meetings, beginning in September and, for the purpose of arranging programs for these meetings, the President was authorized to appoint a Committee on Program, consisting of three members, with the Secretary as chairman.

The election of officers resulted as follows: President, Dr. A. S. Schlingman, Detroit; vice-president for Wayne County, Dr. E. E. Patterson, Detroit; vice-president for Macomb County, Dr. L. H. Smith, Mt Clemens; vice-president for Oakland County, Dr. L. F. Baldock, Birmingham; secretary-treasurer, Dr. H. Preston Hoskins, Detroit.

H. PRESTON HOSKINS, *Secretary*.

NEWS ITEMS

The Iowa Veterinary Association has contributed fifty dollars to the Schmidt Memorial Fund being raised by the A. V. M. A.

The transfer of Dr. J. B. Reidy from Augusta, Maine, to Harrisburg, Pa., has created a vacancy in the office of A. V. M. A. Resident Secretary for Maine.

George Saunders, of Griswold, Man., was fined \$50.00 and costs, or two months in jail, June 4, 1926, for illegally practicing as a veterinary surgeon in Manitoba.

NECROLOGY

FORREST R. HARSH

Captain Forrest R. Harsh, of the Veterinary Corps, Regular Army, died at Camp Lewis, Washington, May 17, 1926.

Born at Obion, Tenn., October 11, 1889, Captain Harsh attended local and high schools, took one year of preparatory work, and then entered the Alabama Polytechnic Institute. He received his D.V.M. in 1910, held the positions of chief meat and milk inspector of Mobile, and assistant state veterinarian of Alabama. Later he was in private practice at Dayton, Ala. He entered the Army about 1920 and joined the A.V.M.A. in 1922

NEWTON FOSTER

Dr. Newton Foster, of Detroit, Mich., died June 5, 1926, in his 70th year, following a protracted illness. He was a graduate of the Ontario Veterinary College, class of 1879. He practiced at Belleville, Ontario, for a number of years, but had not been in active practice since coming to Detroit, a few years ago. Dr. Foster was a first cousin of the late Dr. John V. Newton, of Toledo, Ohio.

SAMUEL TACOMA

Dr. Samuel Tacoma, of Hudsonville, Mich., died at his home, June 9, 1926, in his 45th year. He had not enjoyed good health for several years. Dr. Tacoma was a graduate of the Grand Rapids Veterinary College, class of 1905, and had practiced at Zeeland and Hudsonville for about twenty years. He was a member of the Michigan State Veterinary Medical Association. He is survived by his widow and two children.

GEORGE H. WELLIVER

Dr. George Howard Welliver, of Bloomsburg, Pa., died suddenly, June 1, 1926. He was a graduate of the Ontario Veterinary College, class of 1893, and had been in practice at Bloomsburg continuously since his graduation. He had a wide practice throughout central Pennsylvania and was a highly esteemed citizen of his community. He was a member of the Pennsylvania State Veterinary Medical Association.

JOHN P. MILLER

Dr. John P. Miller, of Reading, Pa., died at his home, May 18, 1926. About two years ago Dr. Miller suffered a stroke of apoplexy. He recovered gradually and was able to engage in practice again for nearly a year preceding his death.

A graduate of the University of Pennsylvania, class of 1899, he spent his whole professional career in Reading and enjoyed a wide practice in Berks County. He was a highly respected citizen and his loss will be keenly felt by his community.

Dr. Miller joined the A.V.M.A. in 1913. He was a member of the Pennsylvania State Veterinary Medical Association and had been closely identified with the Schuylkill Valley Veterinary Association ever since his graduation.

Our sympathy goes out to Dr. B. Kater McInnes, of Charleston, S. C., on the death of his wife, February 23, 1926; to Dr. John H. Morse, of Sumter, S. C., on the death of his wife, March 9, 1926; to Dr. F. E. McClelland, of Buffalo, N. Y., on the death of his wife, March 26, 1926; to Dr. and Mrs. K. H. Gubser, of Adel, Iowa, on the death of their little daughter, April 10, 1926; to Dr. C. A. Langenfeld, of Carroll, Iowa, on the death of his wife, May 26, 1926; to Dr. H. T. Carpenter, of Detroit, Mich., on the death of his wife, June 1, 1926; to Dr. Geo. H. Leenerts, of Humphrey, Nebr., on the death of his wife, May 28, 1926.

MARRIAGES

Dr. Fred M. Shigley (Mich. '23), of Rolette, N. D., to Miss Helen Celia Holtan, May 26, 1926, at White Temple, Portland, Ore.

Dr. Clarence E. Bolton (Corn. '26) to Miss Ruth M. Platt, of Ithaca, N. Y., May 29, 1926, at Auburn, N. Y.

Dr. Thomas J. Gasser (U. P. '24), of Berwyn, Pa., to Miss Ethel E. Burgess, June 9, 1926.

Dr. L. H. Conlon (Corn. '23), of South Lansing, N. Y., to Miss Victoria Jonas, June 14, 1926, at Asbury, N. Y.

Dr. Howard H. Green (Wash. '19) to Miss Thelma Doris Taylor, both of Salem, Ore., June 15, 1926, at Salem, Ore.

In the Heart of the Blue Grass
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BIRTHS

To Dr. and Mrs. F. E. Rugger, of Lowden, Iowa, a son, April 29, 1926.

To Dr. and Mrs. R. M. Hofferd, of Fairfax, Iowa, a daughter, Jean, April 30, 1926.

To Dr. and Mrs. L. C. Feichtinger, of Snyder, Nebr., a daughter, Patricia Ann, May 16, 1926.

To Dr. and Mrs. L. P. Johnson, of Oakland, Nebr., a son, Harold W., May 25, 1926.

To Dr. and Mrs. H. J. Metzger, of Ithaca, N. Y., a son, Sewell, May 29, 1926.

To Dr. and Mrs. Edward Records, of Reno, Nev., a daughter, Mildred Nevada, May 29, 1926.

Lexington! Let's Go!**PERSONALS**

Dr. H. E. Benge (Ind. '18) has located at Cynthiana, Ky.

Dr. J. E. Spore (Ind. '21) is city clerk of Patoka, Ind.

Dr. W. C. McLean (San Fran. '01) is Health Officer for San Mateo, Calif.

Dr. L. D. Hoag (Iowa '25) has removed from Manson, Iowa, to Larchwood, Iowa.

Dr. R. C. Duthie (Ont. '14), formerly of Edmonton, Alta., is now located at Lethbridge, Alta.

Dr. M. J. Hughes (N. Y. U. '20) gives a new address: 1811 West 7th St., Dunellen, N. J., Box 512.

Dr. A. J. Erickson (Chi. '11), of Danville, Ill., has been appointed Douglas County (Ill.) veterinarian.

Dr. F. E. Schnelle (Iowa '19), formerly of Northwood, Iowa, has removed to Rock Rapids, same state.

Dr. Archie M. Ehle (Chi. '17), formerly of Oak Grove, Mo., is now located at Independence, Mo.

Dr. J. H. Cheney (K. S. A. C. '07), of Great Bend, Kans., is dairy inspector for the city of Horsington, Kans.

Dr. C. W. McConkie (Cin. '14), of Napoleon, Ohio, was seriously injured in an automobile accident recently.

Dr. Edward A. Cahill (U. P. '09), vice-president of Pitman-Moore Company, recently made a business trip to Mexico.

Dr. Franklin Adams (K. C. V. C. '11), formerly in practice at Paris, Ill., was recently heard from, in Fresno, Calif.

Dr. R. W. Culbert (McK. '08) has requested that his JOURNAL be mailed to him at 411 Federal Bldg., Indianapolis, Ind.

Dr. Judson Black (Ont. '94), of Lansing, Mich., is recovering from a serious injury which resulted from the kick of a horse.

Dr. F. A. Laird (Chi.'02), state veterinarian of Illinois, recently used the airplane route for making a business trip to St. Louis.

Dr. C. W. McIntosh (Ont. '13) has been transferred from Ottawa, Ont., to the Research Station, Mountain Road, Hull, Que.

Dr. S. W. Brown (O. S. U. '07), of Hamilton, Ohio, addressed the Women's City Club of Hamilton, June 7, on the subject of rabies.

Dr. A. Quinn (Chi. '10), of Sycamore, Ill., has been appointed official veterinarian for DeKalb County to conduct tuberculin testing.

Dr. Peter Garside (Chi. '10), of Bourbon, Ind., who has been in Florida for the past few months, has returned to his northern address.

Dr. V. P. Norton (Gr. Rap. '05) has returned to Wisconsin Rapids, Wis., after an extended absence in the West, in search of lost health.

Dr. George K. Swank (U. P. '94), of Revere, Pa., is in the Johns Hopkins University Hospital, Baltimore, recovering from an operation.

Dr. Roscoe C. Griffith (Ind. '23) has requested a change of address from Firebaugh, Calif., to 1125 South San Pedro Street, Los Angeles.

Dr. E. B. Ackerman (Amer. V. C. '91), formerly of Brooklyn, N. Y., gives a new address: Jericho Turnpike, Huntington, N. Y., R. F. D. 1.

Dr. Joseph J. Donahoe (Chi. '14), has resumed practice in Mt. Clemens, Mich., after an absence of about two years, necessitated by illness.

Dr. Leonard W. Goss (O. S. U. '05), of Columbus, Ohio, was ordered to Carlisle Barracks, Pa., for two weeks of military training, June 16-30.

Dr. C. H. Beckman (Iowa '20) has relinquished his practice at Humboldt, Iowa, to go into the poultry and fruit "game," near St. Louis, Mo.

Dr. G. L. Krieger (K. S. A. C. '24), who has been in practice at Bellflower, Ill., has left for New York City to accept a laboratory position there.

Dr. Francis W. Crawford (K. S. A. C. '23), of Colorado Springs, Colo., recently completed a fifteen-day training period at Fort Sheridan, Ill.

Dr. J. A. Donaghue (Ont. '08) has returned to Colfax, Wash., after an absence in California made necessary on account of sickness in his family.

Dr. H. E. Wright (Mich. '18), of Ann Arbor, Mich., has been appointed County Live Stock Agent by the Board of Supervisors of Washtenaw County.

Dr. H. A. Tobin (McK. '07), of Three Rivers, Mich., has been appointed County Live Stock Agent for St. Joseph County (Mich.) by the Board of Supervisors.

Dr. C. C. Sockman, (O. S. U. '06), of Deshler, Ohio. was recently obliged to undergo the Pasteur treatment, following a bite on the hand, inflicted by a rabid dog.

Dr. Albert R. Miller (Iowa '24), who was located in Detroit during the past year, is now in Chicago. Address: The Rayman Apartments, 4919 Lakepark Avenue.

Dr. I. N. Hendricks (McK. '03), of Owensboro, Ky., has been appointed Daviess County veterinarian, succeeding Dr. D. E. Westmoreland, now state veterinarian.

Dr. F. A. Zimmer (O. S. U. '09), state veterinarian of Ohio, addressed a large gathering of cattle-owners at Upper Sandusky, Ohio, June 9, on the subject of tuberculosis.

Dr. Donald C. Beaver (Mich. '18), of Detroit, Mich., received the degree of Doctor of Medicine at the commencement exercises of the Detroit College of Medicine and Surgery, June 17, 1926.

Dr. J. A. Fries (Gr. Rap. '13), of Durand, Mich., is reported to have purchased a farm of one hundred acres west of Durand, with the intention of combining farming with his veterinary practice.

Dr. L. A. Merillat (Ont. '88), of Evanston, Ill., is scheduled to conduct the clinic in connection with the meeting of the Veterinary Association of Manitoba, to be held at Portage la Prairie, July 20.

Dr. Ocie Carter (T. H. '18), of Bardwell, Ky., has relinquished his practice to accept an appointment in the Bureau of Animal Industry, Meat Inspection Division. He was ordered to report for duty at Knoxville, Tenn., June 15.

Dr. Hubert Shull (Ont. '16), of Texarkana, Ark.-Tex., has been elected secretary-treasurer of the Lions Club of Texarkana for the sixth consecutive term. He also is a delegate of the Club to the international convention of Lions Clubs, to be held in San Francisco this year.

Dr. W. R. Hinshaw (Mich. '23) received the degree of Master of Science from the Kansas State Agricultural College, June 3, 1926. Dr. Hinshaw majored in bacteriology. During the second semester he was elected to membership in Phi Kappa Phi, national honorary scholarship society and in Gamma Sigma Delta, national honorary agricultural society.

Drs. G. P. Statter (Ont. '90-McK. '99) and F. W. Cairy (Iowa '13), members of the Abu-Bekr Temple Mounted Arab Patrol, of Sioux City, Iowa, were among those who participated in the Shriners' celebration in Philadelphia recently. They passed through Detroit on their way home and were in the Motor City long enough to drop the Editor a souvenir post-card.

Dr. T. H. Edwards (K. C. V. C. '09) has been reinstated in the U. S. B. A. I., and is now stationed at the Carstens Packing Company plant, in Tacoma, Wash. While in practice, at Compton, Calif., Dr. Edwards met with an accident which resulted in a broken arm. Stiffness of the arm which followed incapacitated him for general practice, so he asked for and obtained reinstatement in the Bureau.

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STATE BOARD EXAMINATIONS

Iowa Veterinary Examining Board. State House, Des Moines, Iowa. July 1-2, 1926. Dr. Peter Malcolm, Secretary, Des Moines, Iowa.

Illinois Veterinary Examining Board. Springfield, Ill. July 19-20, 1926. Superintendent, Board of Registration, Springfield, Ill.